DOCUMENT RESUME

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ABSTRACT

This in-service guide to the San Mateo Nutrition Activity Curriculum (SNAC) was designed to assist the Nutrition Educator and/or the Food Service worker toward a better understanding of the relationship between the "reimbursable" lunch/breakfast program and the dietary needs of elementary school students. The curriculum is based on a series of mini-workshops providing the Nutrition Educator and Food Service worker with information under the following topic (lesson) headings: Make It a Team: the Four Food Groups: Nutrients for Health: Planning Menus For Reimbursable Meals: and Nutrition Education Strategies. Each lesson includes an introduction, lesson objectives: supplemental materials (posters, booklets, and handouts), and activities. Sample worksheets from the SNAC Curriculum Guides are provided. (Author/MP)

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SNAC
San Mateo Nutrition Activity Curriculum
"Swing Into Nutrition"

SAN MATEO CITY SCHOOL DISTRICT

50 Peninsula Avenue

P.O. Box K

San Mateo, California 94402

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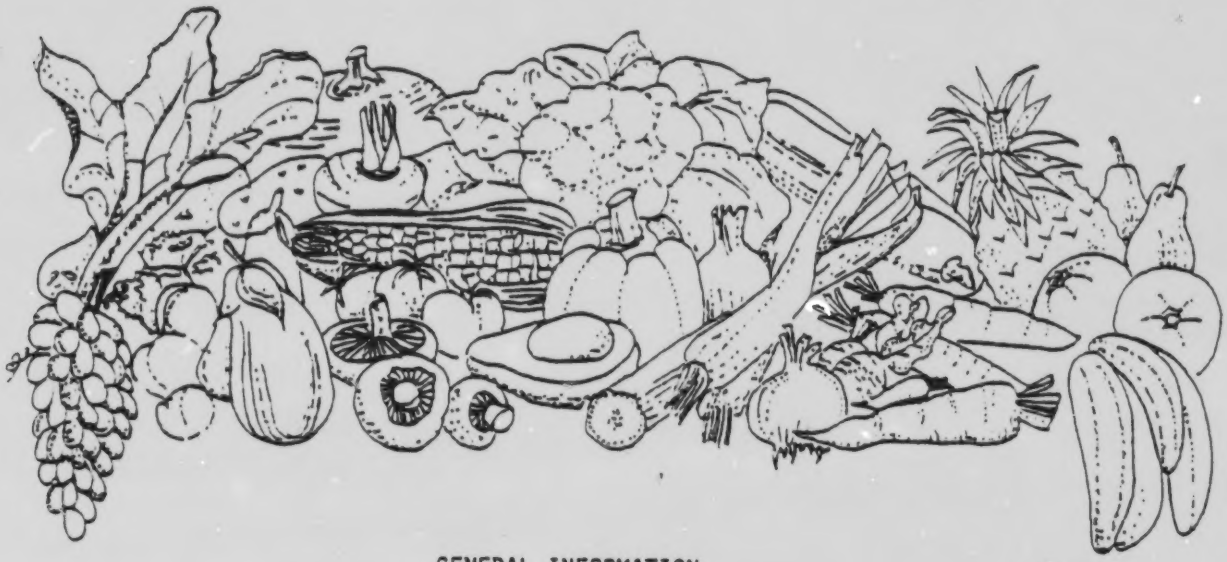
San Mateo City School District



GENERAL INFORMATION

Nutrition Education starts with you! The San Mateo City School District has designed a program in the elementary grades to integrate nutrition education into the general curriculum.

The goal of this program is to prepare elementary grade students to develop and improve healthful food habits.

This Guide is designed to help the Food Service worker have a better understanding of the relationship between the "reimbursible" lunch/ breakfast and the dietary needs of children. A series of mini-workshops have been prepared that will provide Food Service workers with information on

Make It A Team
Basic Nutrition
Planning School Lunches
Nutrition Education Strategies

The last three sections give the Nutrition Educator and/or the Food Service worker ways to decorate the cafeteria through posters. These posters reinforce foods and ideas to be brought to the children's attention during lunch.

All of the lessons and activities mentioned in this Food Service Guide have been designed, tested, evaluated, and articulated by Project nutritionists and Food Service workers. They have proven effective for all participants. Through the use of this Guide, you will be able to enhance the use of the school lunch program as a learning opportunity.

So join us and .....

"SWING INTO NUTRITION!"

ACKNOWLEDGEMENTS

Many, many people have helped and contributed valuable time in the development, teaching, and evaluation of the San Mateo Nutrition Education Project. The Nutrition Education Staff in San Mateo City School District wishes to acknowledge and thank these persons for their special achievements.

Food Service Director	Carvill Veech (Project Director 1976-79)
Nutrition Education Aide	Lenore Hicks
The Board of Education	Donald Hill Sue Lempert Albert Di Matteo Robert Braun Jeanne Schlueter
All Project K-5 Teachers	Laurel School North Shoreview School
Project Principals	Warren Kofler Charles Moorer
Graphic Artists	Brooke Travers William Kirk David Moore

AND

School Food Service staff members, parents, school nurses, the Project Evaluator Howard Wolff, Ph.D., Special Curriculum Consultant Anna Nuernberger, and Nutrition Education secretarial staff, especially Althea Jocz and Barbara Harris.

SAN MATEO CITY SCHOOLS NUTRITION EDUCATION PROJECT

Food Service In-Service Guide

LESSON PLAN NUMBER	LESSON PLAN TITLE AND ACTIVITIES	LESSON OBJECTIVE	PAGE(S)
1	"MAKE IT A TEAM"	To identify the need for school lunches and to develop a relationship between nutrition education and food service.	1
	Monthly Posters - 9 posters		10 - 28
	Individual Food Posters - 15 posters		29 - 60
2	"FOUR FOOD GROUPS"	To identify and classify the Four Food Groups.	2 - 3
	School Menu - handout	To analyze the school's menu for the Four Food Groups.	61
3	"NUTRIENTS FOR HEALTH"	To identify the six (6) nutrients and their functions.	4 - 5
	"Nutrition With Nelson" - filmstrip		
	"Nutrition Notes" - booklet		62 - 90
	"1980 RDA" - handout		91
4	PLANNING MENUS FOR REIMBURSABLE MEALS	To define and plan a reimbursable meal.	6 - 7
	"A Menu Planning Guide For Type "A" School Lunches" - booklet		92 - 115
	"Nutrition Sense" or "Which Meals Are Eligible For Financial Reimbursement"? - worksheet		116
	"Reimbursable Meals Pattern" - handout		117
	"Menu Planning Worksheet For Reimbursable Meals" - worksheet		118
5	INTRODUCTION TO SNAC	To identify the common goals of food service and nutrition education for children and list two or more ways they can work as a team with classroom teachers.	8 - 9
	Sample worksheets from SNAC Curriculum Guides - handouts		119 - 126

SAN MATEO CITY SCHOOLS NUTRITION EDUCATION PROJECT

(SNAC)

"SWING INTO NUTRITION!"

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Food Service Workshops I - V	1 - 9
Appendix	10 - 126

MAKE IT A TEAM

OBJECTIVES: Learner will be able to:

1) To identify the need of school lunches.
2) To develop a relationship between nutrition education and food service.

INTRODUCTION: Why do you and thousands of food service workers prepare and serve millions of meals in the Nation's schools each day?

The National School Lunch Program is a means of providing nutritious, reasonably priced, free, or reduced price lunches to school children. It also contributes to a better understanding of good nutrition and, hopefully to improve eating habits.

In 1946, Congress passed the National School Lunch Act to safeguard the health and well-being of children through the use of our agricultural abundance.

The National School Lunch Program is sponsored by the U.S. Department of Agriculture which helps schools provide this service through monetary reimbursements for nutritious meals and by providing low-cost or free commodity foods.

It is important that meals served meet the standards set forth by the U.S.D.A. in order to receive the reimbursements and the commodities. Without their financial assistance, school food services would not be able to stay in business.

Once the food service meets the basic survival requirements of serving the "reimbursable" meal, the next step is to make sure the feeding program (lunch/breakfast) becomes a basic part of the nutritional and education programs of the Nation.

MATERIALS: A set of the monthly posters to be placed in cafeteria. (Appendix pp. 10 - 28)
A set of posters on individual food items offered on the school lunch menu. (Appendix pp. 29 - 60)

ACTIVITY

GROUP ACTIVITY:

1) Have participants explain how we can "Make It A Team" with food service and nutrition education.
2) Pass out the two sets of posters to each participant.
3) Have each participant react on how these posters relate to food service.

EVALUATION: Ask participants what makes food service and nutrition education "a team."

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THE FOUR FOOD GROUPS

2

OBJECTIVES: Learner will be able to:

1) To identify the Four Food Groups.
2) To classify selected foods according to the Four Food Group System.
3) To analyze the school's menu for the Four Food Groups.

INTRODUCTION: The Four Food Group System is a simple method of grouping foods according to their nutritional value. The Four Food Group System is based on the American food supply, but ethnic foods can also be grouped into one of the Four Basic Groups or "other foods." This lesson introduces food group names and classification without an emphasis on nutrients -- much the same way the Four Food Groups are introduced in the early elementary grades.

MATERIALS: For each participant: blank paper, pencil, school menu (Appendix pg. 61)
Flipchart/butcher paper and flow pen
Four Food Group poster (Project SNAC)

ACTIVITY

GROUP ACTIVITY:

1) Have participants name favorite foods and/or most recent foods eaten. Leader writes each on large chart. Explain that the list will be used later.
2) Display the Four Food Group poster. Introduce the names of the groups. Explain that foods are grouped according to their major nutritional value. Orally go over foods in each group -- meat/milk/fruit-vegetable/bread-cereal.
3) Make a four-part chart: one for each basic food group and have participants discuss classification of each food. Separate "mixed foods" into appropriate groups and write high-fat, high-sugar, low-nutrient foods at the bottom. Explain that everything we eat and drink does not necessarily qualify as one of the four basic groups.

INDIVIDUAL ACTIVITY:

1) Have each participant divide a paper into four squares and classify the foods from one lunch on the school's menu into appropriate groups.
2) Have participants trade paper with a neighbor and report reasons for classifications. Instructor can circulate and answer questions.

EVALUATION:

1) Have participants number 1 to 10 on backside of paper. Name 10 sample foods and have participants write food name and appropriate food group.

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EVALUATION: (continued)

2) Go over correct answers. Allow time for questions and answers.
3) Explain that simple food group classification is a good way to check with nutritional balance of a meal.

NUTRIENTS FOR HEALTH

OBJECTIVES: Learner will be able to:

1) To identify the six (6) nutrient classes.
2) To match nutrients to major functions.

INTRODUCTION: The ability to name the Four Food Groups and classify foods into the appropriate group can be mastered without the more detailed knowledge of nutrients. However, an awareness of the wide variety of nutrients available in food and how they provide the basis for good nutrition is important to an understanding of the scientific basis of nutrition.

MATERIALS:
"Nutrition Notes" booklet - one per participant
(Appendix pp. 62 - 90)
Blank flipchart, flowpen
"Nutrition With Nelson" - filmstrip/cassett
Dairy Council of California (Project SNAC)
Recommended: 1980 R.D.A. handout - one per participant
(Appendix pg. 91)

ACTIVITY

GROUP ACTIVITY: Discussion and review 1980 R.D.A.

1) Ask participants to offer a definition of the term "nutrient." Write key phrases on blank flipchart. Summarize by writing the following definition on the chart:

   nutrients: chemicals in food which the body uses for energy, growth and maintenance of health

2) On the next page of the chart, write the names of the six (6) nutrient groups.

   - protein for cell repair, growth, energy
   - fat for energy
   - carbohydrate (sugars and starches) for energy
   - vitamins (A,B,C,D,E) for health maintenance
   - minerals (iron, calcium, iodine, etc.) for healthy blood, bones
   - water to keep body systems operating smoothly

   Review the major function of each and add to chart as above.

3) Introduce the term R.D.A. (Recommended Dietary Allowances). Ask how many people have heard the term. Ask for a definition. Follow with a brief explanation of the R.D.A. (recommended daily intake of approximately twenty (20) nutrients for average

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GROUP ACTIVITY: (continued)

males and females in various stages of life--infancy, childhood, adulthood, pregnancy, lactation).

If desired, distribute copies of the 1980 R.D.A. for participants to see.

As the R.D.A.'s are being reviewed, explain that these are estimates based on research and that the school lunch is supposed to provide 1/3 of the child's daily nutritional needs, i.e. 1/3 of the R.D.A.'s for all listed nutrients.

Explain that the term U.S.R.D.A. is used on food nutrition labels which is a different set of figures than the R.D.A. U.S.R.D.A. is the highest amount listed for any group for each nutrient except for pregnant and lactating women.

4) Have participants look over "Nutrition Notes", then discuss.

Of the fifty or more nutrients the body needs, we can "zero in" on eight because they are usually accompanied by other nutrients in the foods we eat. By choosing foods, not pills, which are a good, natural source of the eight leader nutrients, an individual can be fairly well assured daily allowances of all nutrients plus trace nutrients for which recommended levels are not even made. The "hitch" is that at least the recommended number of servings from each of the basic Four Food Groups must be eaten daily.

Show the filmstrip "Nutrition With Nelson." Explain that this filmstrip is designed for upper elementary students but contains all the information one needs to know about "leader" nutrients and how to get them. After the filmstrip, ask if there are any questions.

EVALUATION: Ask participants to write the meaning of the term "leader nutrients" and the food groups which are good sources of each of the eight "leaders."

PLANNING MENUS FOR REIMBURSABLE MEALS

4

OBJECTIVES:

The learner will be able to:

1) To define the term "reimbursable lunch."
2) To plan a reimbursable lunch menu.

INTRODUCTION:

Schools can obtain a combination of Federal and State funds and other resources to help them provide meal programs. Federal funds and commodities are provided through the National School Lunch Program and the National School Breakfast Program. State funds are provided by the California Child Nutrition Act of 1974 and the Child Nutrition Facilities Act of 1975.

The Federal government reimburses schools for each meal served according to whether the student receives a free, reduced price or full-cost meal. Reimbursements cover food, labor and other expenses associated with meal preparation and service. The government will reimburse schools for the cost of each meal up to the specified amount, but will not give the schools more than they actually spend.

MATERIALS:

"A Menu Planning Guide For Type "A" School Lunches" - booklet, U.S.D.A., Food and Nutrition Service Program Article #719 - 1 per participant (Appendix pp. 92 - 115)
"Nutrition Sense" or "Which Meals Are Eligible For Financial Reimbursement"? - worksheet - 1 per participant (Appendix pg. 116)
"Menu Planning Worksheet For Reimbursable Meals" - worksheet - 1 per participant (Appendix pg. 118)
"Reimbursable Meals Pattern" - handout - 1 per participant (Appendix pg. 117)

ACTIVITY

GROUP ACTIVITY:

Hand out to each participant "Nutrition Sense" or "Which Meals Are Eligible For Financial Reimbursement"? Allow about five minutes for completion. (It is intended as a combination pre-test and motivation. Do not provide answers.)

Distribute copies of "A Menu Planning Guide for Type "A" School Lunches" - booklet

1) Turn to page 2 and review "Type "A" Lunch Pattern"
2) Return to completed worksheet and discuss participants answers including questions and answers.

GROUP ACTIVITY: (continued)

They might have Worksheet Answers:

Reimbursable Meals #2, 4, 6

Non-Reimbursable Meals
#1 - no vegetable
#3 - no bread
#5 - no fruit, only one vegetable

3) Turn to page 4 and review orally "For Children In The Lower Elementary Grades" and "For Children In The Upper Elementary Grades."

4) Refer to the chart on Page 5 and go over each age level serving size. Handout "Reimbursable Meals Pattern" to each participant.

5) Turn to pages 10 - 11. Review the foods which meet the requirement for reimbursement. Point out that a change has been made in items that meet the bread requirement. As of 1979, the following foods previously not counted as bread items will count toward a reimbursable lunch--enriched or whole grain macaroni, noodles, spaghetti, rice, grits, and bulgur.

6) Review foods high in iron. Check the worksheet to see if foods high in iron are included in each reimbursable meal.

Give each participant the worksheet "Menu Planning Worksheet For Reimbursable Meals"; refer to pages 12 - 13 of the Menu Planning Guide.

1) Plan one menu as a group including serving sizes.
2) Have each participant plan a menu for a reimbursable lunch including serving sizes for a 6 - 12 year old.
3) Have several participants share their menus and have the group evaluate it according to the guidelines on page 16 of the Menu Planning Guide.

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INTRODUCTION TO SNAC

(Nutrition Education In The Classroom)

OBJECTIVES: The learner will be able to:

1) To identify the common goals of food service and nutrition education for children.
2) To list two or more ways Food Service personnel, Nutrition Education staff, and classroom teachers can cooperate in nutrition education.

INTRODUCTION: This unit will introduce the classroom Nutrition Education Project to the Food Service worker and explore the ways in which the Food Service Department and its employees can enhance Nutrition Education by using the school lunch as a learning tool.

MATERIALS:
Project SNAC Curriculum Guides K-5 (Project SNAC)
Food Service In-Service Guide for Nutrition Education (Project SNAC)
Project SNAC Brochure (Project SNAC)
Sample worksheets from SNAC Curriculum Guides - (Appendix pp. 119 - 126)

ACTIVITY

GROUP ACTIVITY: Distribute copies of the Project SNAC Brochure and review.

Circulate sample copies of the SNAC Curriculum Guides and review the five concepts that are covered.

1) Ask participants to write down what each feels are the two most important goals of the school lunch program. Share and discuss ideas. (If improving children's eating habits is not mentioned, the instructor should add this in discussion.)
2) Ask for suggestions of ways the cafeteria and the lunch can be used to teach basic nutrition concepts to participating children.

Possible Suggestions:

- menus listing major nutrients
- posters in cafeteria - holiday/nutrients
- menu writing contests
- plate waste studies
- student surveys
- nutrition fair
- provide classrooms with specially requested foods for a nutrition project prior to appearance on menu.

GROUP ACTIVITY: (continued)

3) Distribute Food Service In-Service Guide to each participant to take home.

EVALUATION: Instructor evaluation of participant responses.

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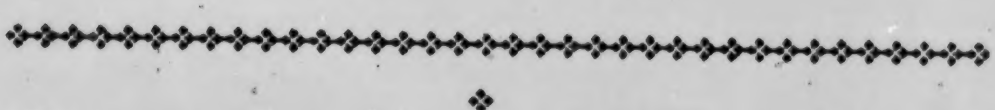
APPENDIX

THE FOLLOWING ARE MADE INTO COLORFUL POSTERS AND DISPLAYED IN THE SCHOOL LUNCHROOM — ONE FOR EACH MONTH OF THE SCHOOL YEAR — TO ENCOURAGE PARTICIPATION BY THE STUDENTS IN THE SCHOOL LUNCH PROGRAM.



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SUGGESTED NUTRITION EDUCATION DISPLAYS
FOR THE MONTH OF SEPTEMBER

DISPLAY: AN "A" ABOUT 3' TALL, WITH THE FOLLOWING MESSAGE IN HIS HAND:

"TYPE 'A' LUNCH"

THE MESSAGE SHOULD STATE: " TYPE "A" LUNCH CAN'T BE BEAT"

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

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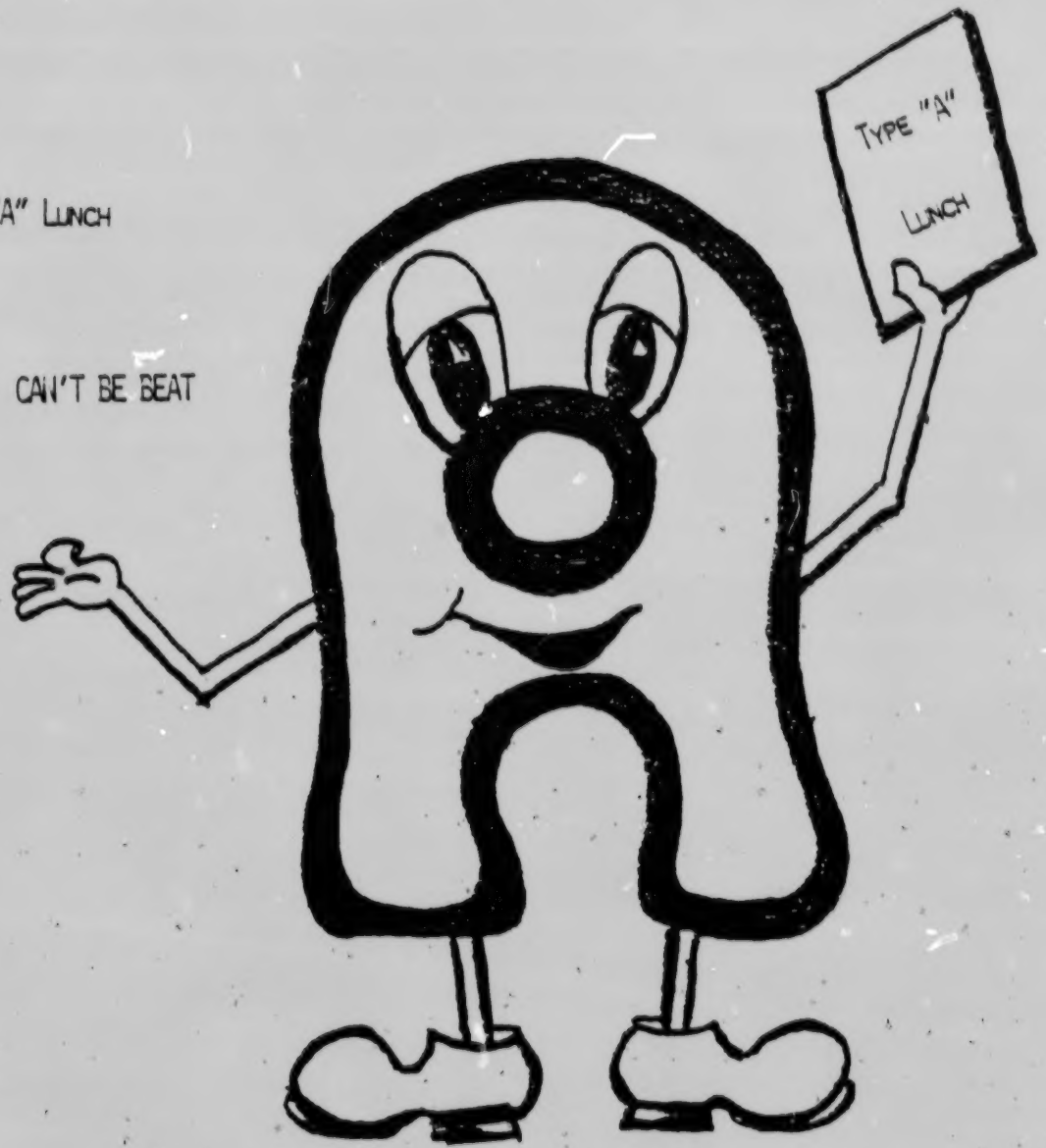
TYPE "A" LUNCH

CAN'T BE BEAT



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SUGGESTED NUTRITION EDUCATION DISPLAYS
FOR THE MONTH OF OCTOBER

DISPLAY: A BLACK CAT AND A PUMPKIN ON A FENCE, BEING ABOUT 3' WIDE AND 1-1/2' TALL.

THE MESSAGE SHOULD STATE: "DON'T BE SCARED -
EAT IN YOUR SCHOOL CAFETERIA"

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

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SUGGESTED NUTRITION EDUCATION DISPLAYS
FOR THE MONTH OF NOVEMBER

DISPLAY: A PICTURE OF A TURKEY, ABOUT 3' TALL.

THE MESSAGE SHOULD STATE: "GOBBLE UP - WITH A BALANCED MEAL IN THE SCHOOL'S CAFETERIA"

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

GOBBLE UP
With A
Balanced Meal
In The School's Cafeteria

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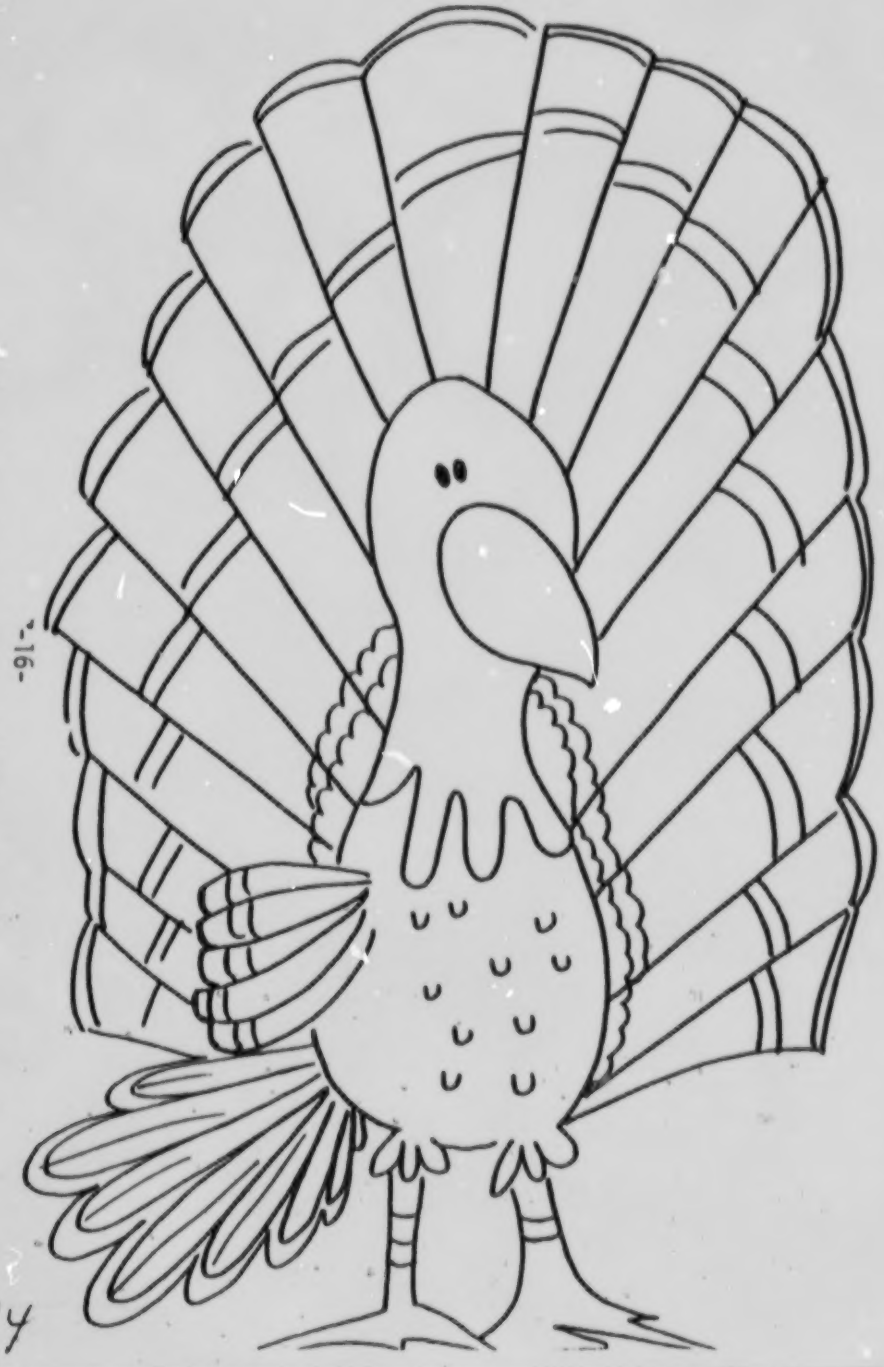

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GOBBLE UP

WITH A

BALANCED MEAL

IN THE SCHOOL'S CAFETERIA

SUGGESTED NUTRITION EDUCATION DISPLAYS
FOR THE MONTH OF DECEMBER

DISPLAY: A PICTURE OF A REINDEER ABOUT 3' TALL.

THE MESSAGE SHOULD STATE: "RUDOLPH SAYS ....
"FOLLOW MY NOSE TO THE
SMELL OF THE SCHOOL'S CAFETERIA."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

RUDOLPH says ....
"Follow my nose to the
Smell of the
School's Cafeteria."

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RUDOLPH SAYS ....

"FOLLOW MY NOSE TO THE
SMELL OF THE
SCHOOL'S CAFETERIA."

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SUGGESTED NUTRITION EDUCATION DISPLAYS

FOR THE MONTH OF JANUARY

DISPLAY: A PICTURE OF A SNOWMAN ABOUT 2-1/2' TALL.

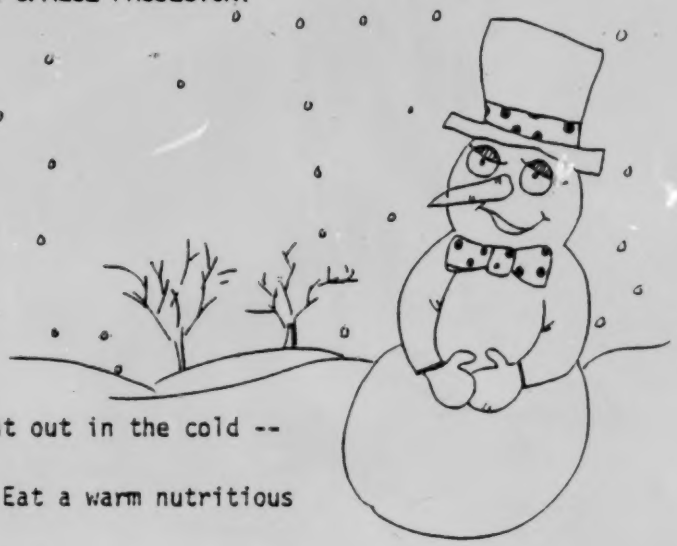
THE MESSAGE SHOULD STATE: "FROSTY SAYS ....

"DON'T BE CAUGHT OUT IN THE COLD -

EAT A WARM NUTRITIOUS

LUNCH IN THE CAFETERIA."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

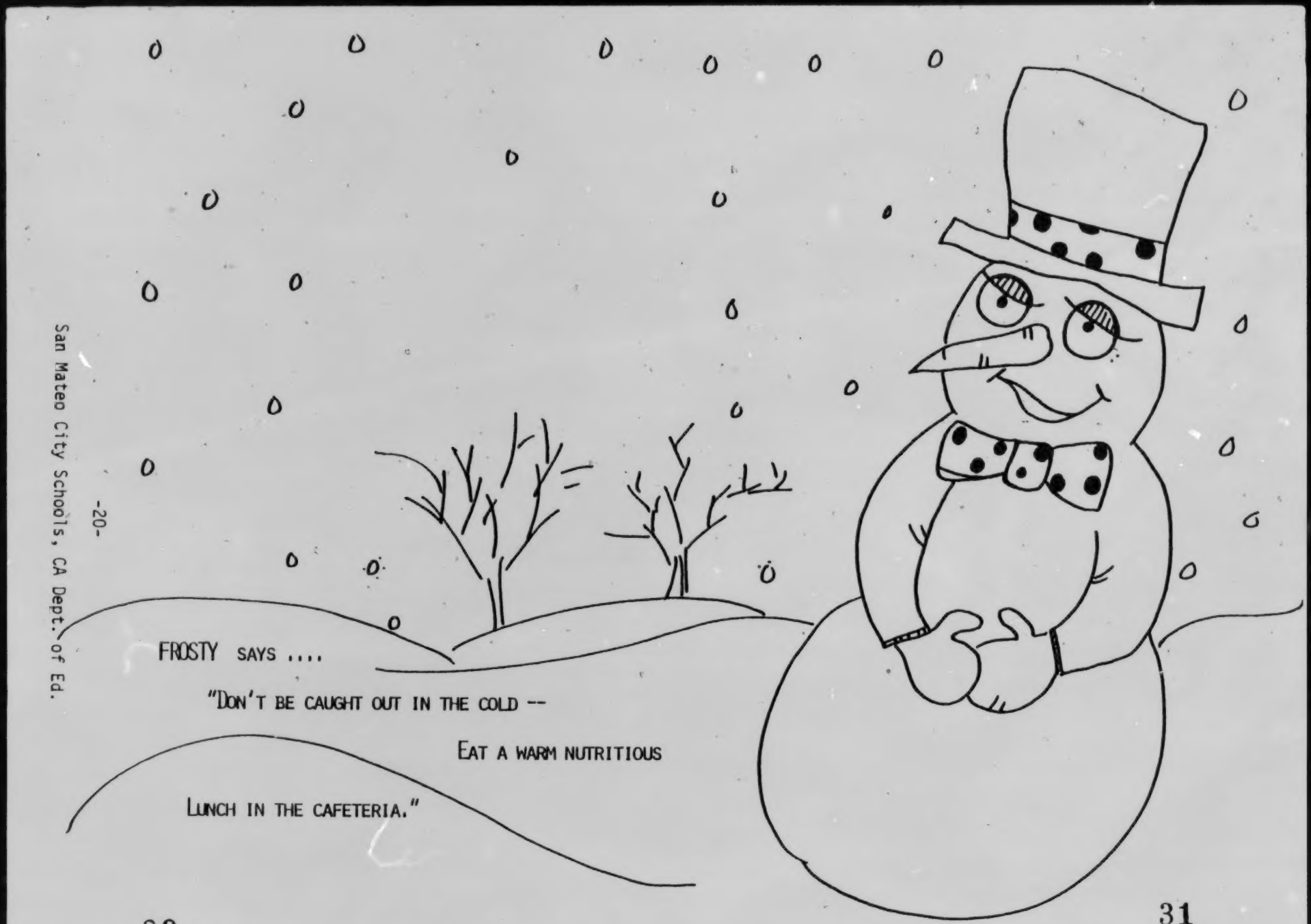


FROSTY says ....

"Don't be caught out in the cold --

Eat a warm nutritious

Lunch in the cafeteria."



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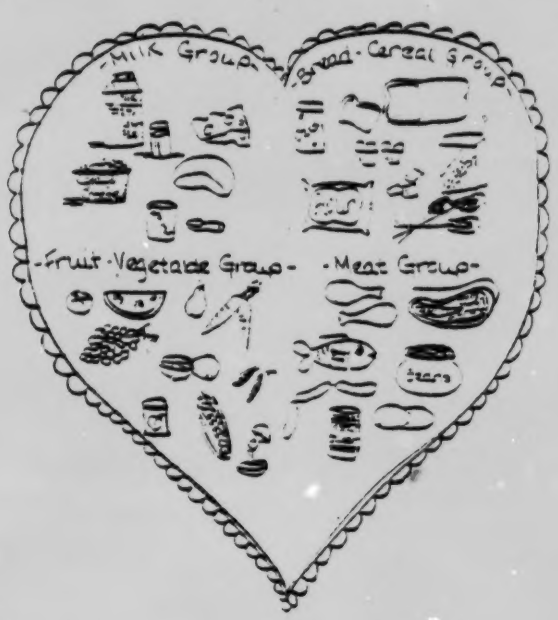
SUGGESTED NUTRITION EDUCATION DISPLAYS
FOR THE MONTH OF FEBRUARY

DISPLAY: A PICTURE OF A HEART WITH THE FOUR FOOD GROUPS, ABOUT 3' TALL.

THE MESSAGE SHOULD STATE: "SAVE YOUR HEART - EAT SOMETHING FROM ALL FOUR FOOD GROUPS."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.



SAVE YOUR HEART

Eat something from all
Four Food Groups

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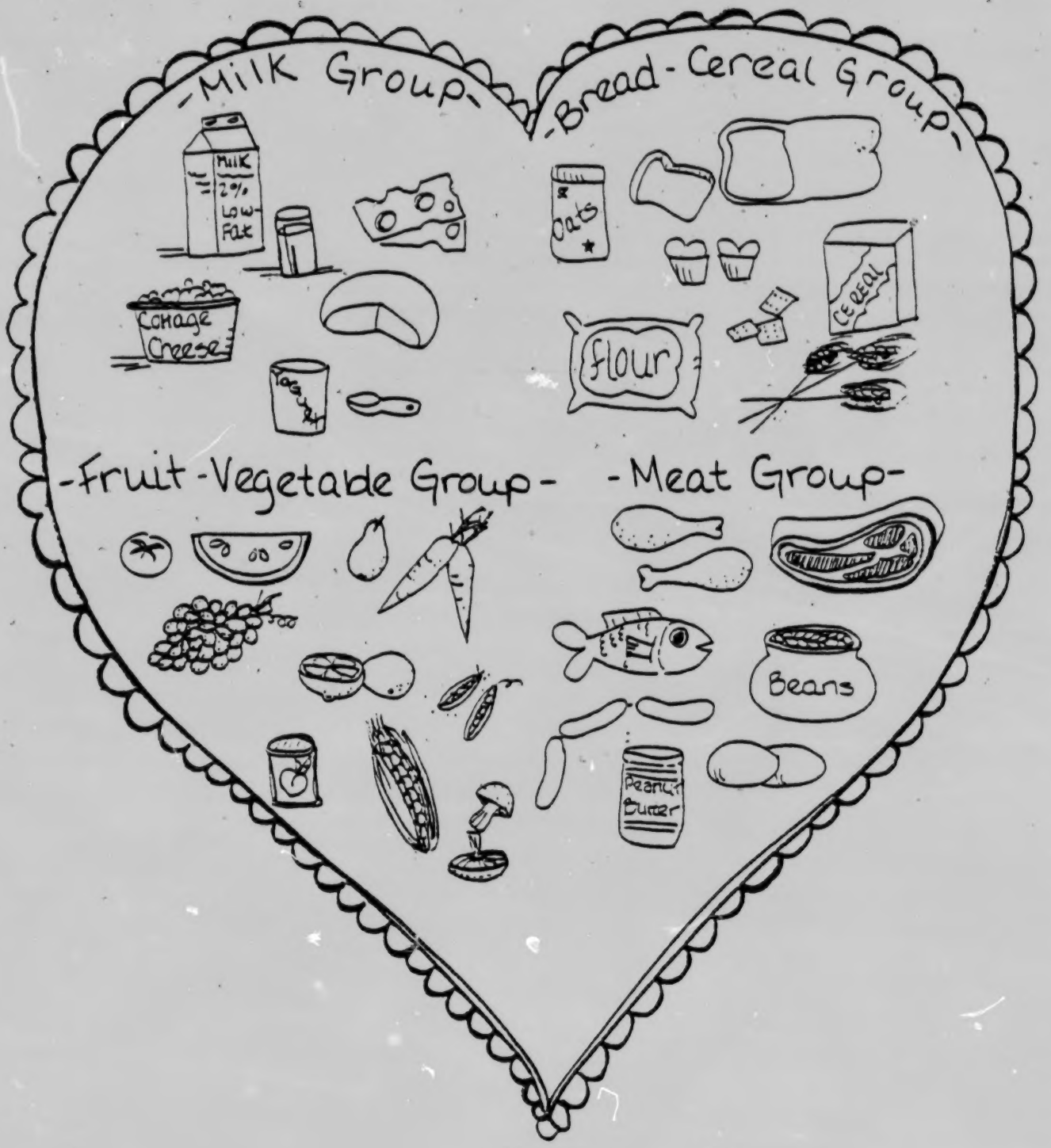
SAVE YOUR HEART

EAT SOMETHING FROM ALL

FOUR FOOD GROUPS



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SUGGESTED NUTRITION EDUCATION DISPLAYS
FOR THE MONTH OF MARCH

DISPLAY: A PICTURE OF A LEPRECHAUN, ABOUT 2-1/2' TALL.

THE MESSAGE SHOULD STATE: "BE LUCKY -
EAT
YOUR
SCHOOL
LUNCH

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

BE LUCKY
Eat
Your
School
Lunch

BE
LUCKY

BE
LUCKY

BE LUCKY

BE LUCKY

BE LUCKY

EAT
YOUR
SCHOOL
LUNCH

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SUGGESTED NUTRITION EDUCATION DISPLAYS

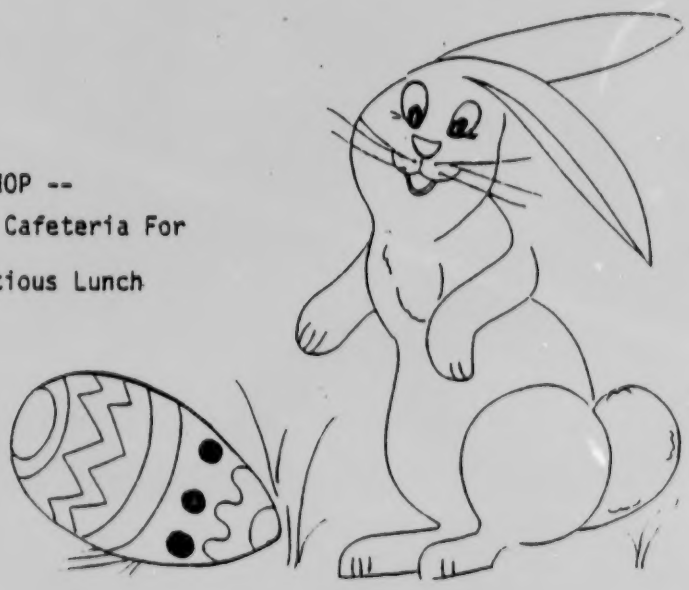
FOR THE MONTH OF APRIL

DISPLAY: A PICTURE OF A BUNNY AND AN EGG, ABOUT 3' TALL.

THE MESSAGE SHOULD STATE: "HOPPITY, HOPPITY, HOP — TO THE SCHOOL CAFETERIA FOR A NUTRITIOUS LUNCH."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

HOPPITY, HOPPITY, HOP --
To The School Cafeteria For
A Nutritious Lunch



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HOPPITY, HOPPITY, HOP --

TO THE SCHOOL CAFETERIA FOR

A NUTRITIOUS LUNCH

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SUGGESTED NUTRITION EDUCATION DISPLAYS

FOR THE MONTH OF MAY

DISPLAY: A PICTURE OF FLOWERS AND SUN, ABOUT 3' TALL

THE MESSAGE SHOULD STATE: BE HEALTHY AND HAPPY WITH A GOOD SCHOOL LUNCH

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

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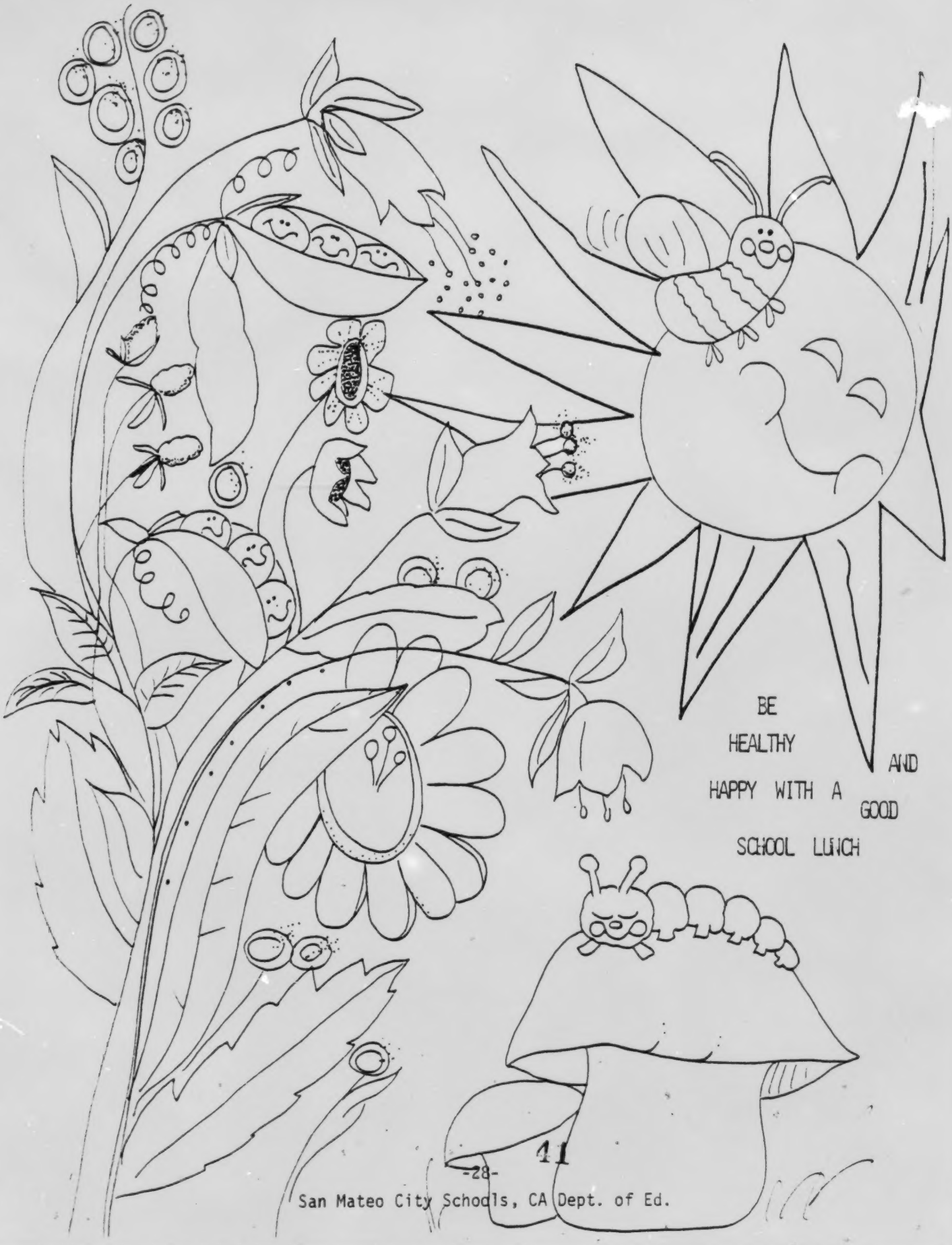

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THE FOLLOWING ARE MADE INTO COLORFUL POSTERS ILLUSTRATING INDIVIDUAL FOODS THAT WILL BE APPEARING ON THE SCHOOL LUNCH MENU. THEY ARE DISPLAYED ON THE DAY THAT FOOD IS SERVED -- TO ENCOURAGE STUDENTS TO EAT THESE NUTRITIOUS FOODS.

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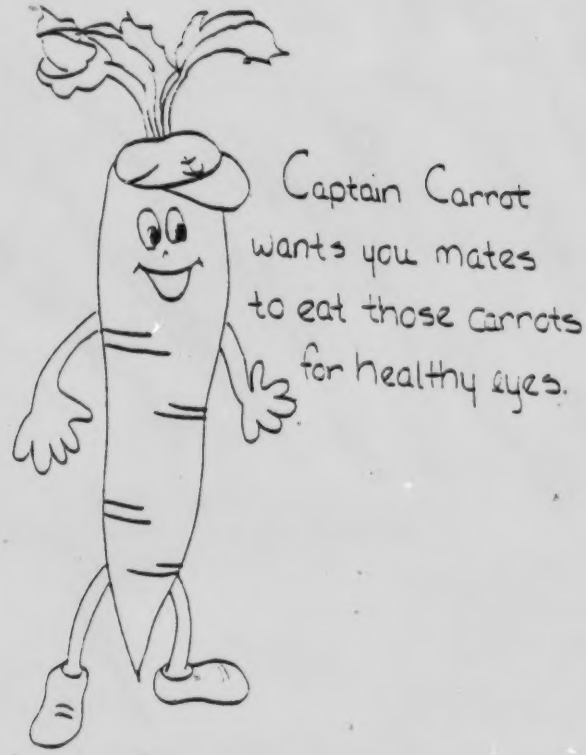
SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A CARROT WITH A CAP AND SHOES, ABOUT 3' TALL.

THE MESSAGE SHOULD STATE: "CAPTAIN CARROT WANTS YOU MATES TO EAT THOSE CARROTS FOR HEALTHY EYES."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.



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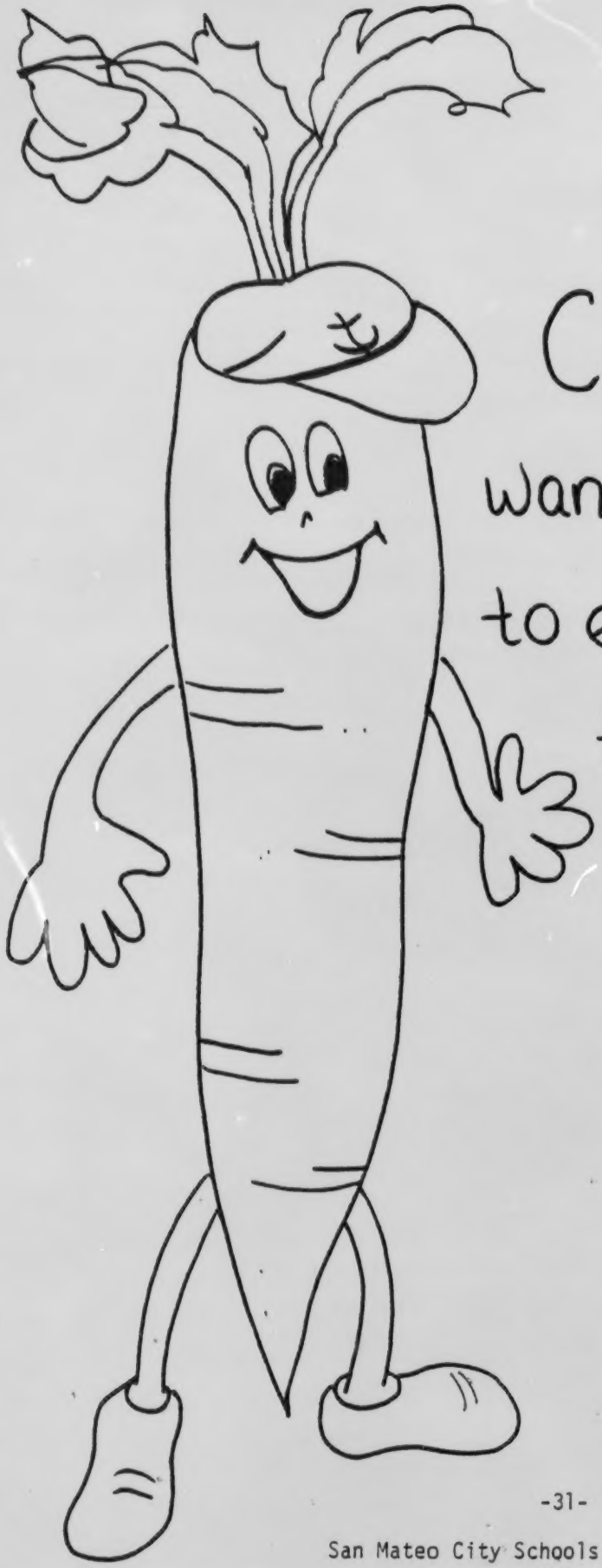

Captain Carrot
wants you mates
to eat those carrots
for healthy eyes.

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A CARTON AND A GLASS OF MILK, ABOUT 2-1/2' TALL.

THE MESSAGE SHOULD STATE: "CLARABELLE COW MOOS FOR YOU TO DRINK LOWFAT MILK."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

Clarabelle Cow moo's for you to drink Lowfat Milk.

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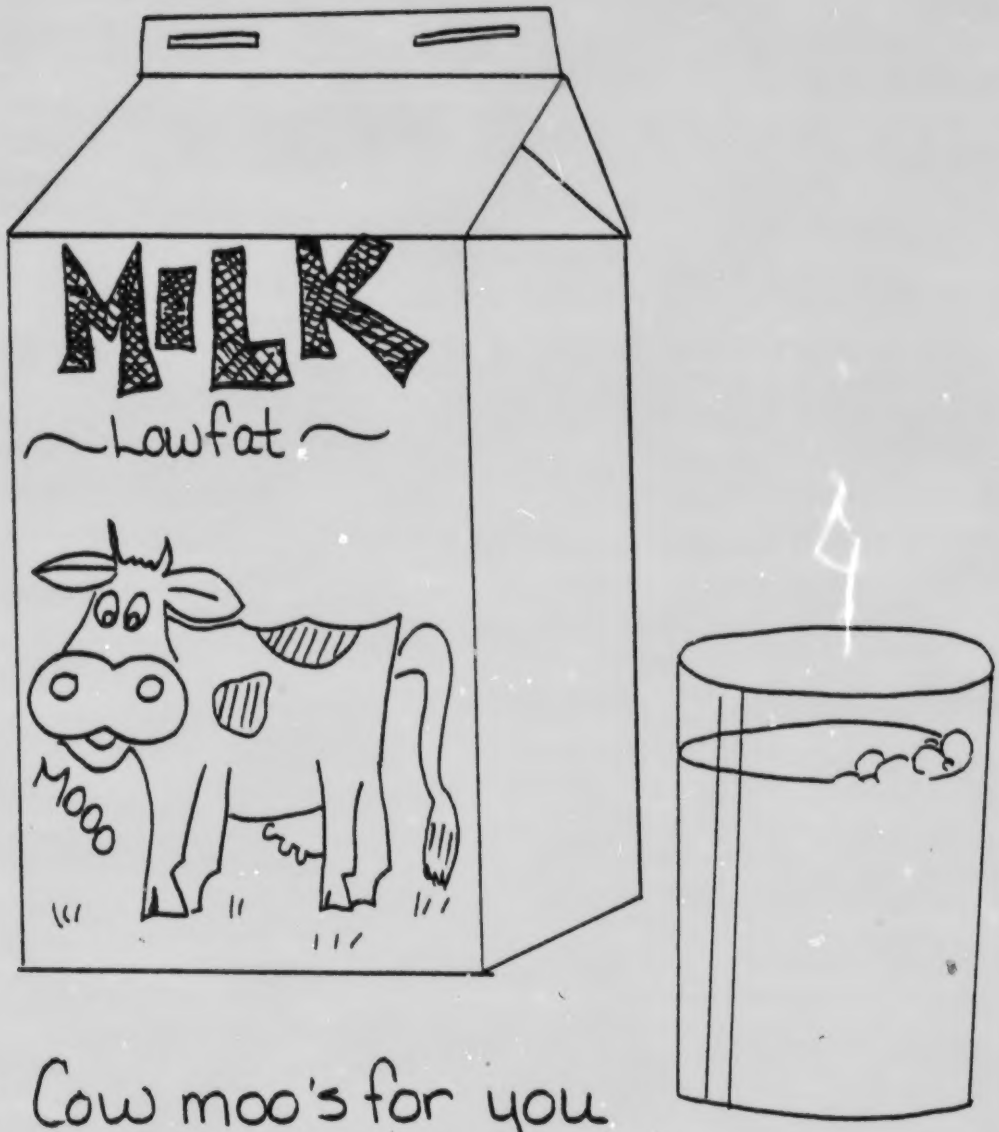

Clarabelle Cow moo's for you

to drink Lowfat Milk.

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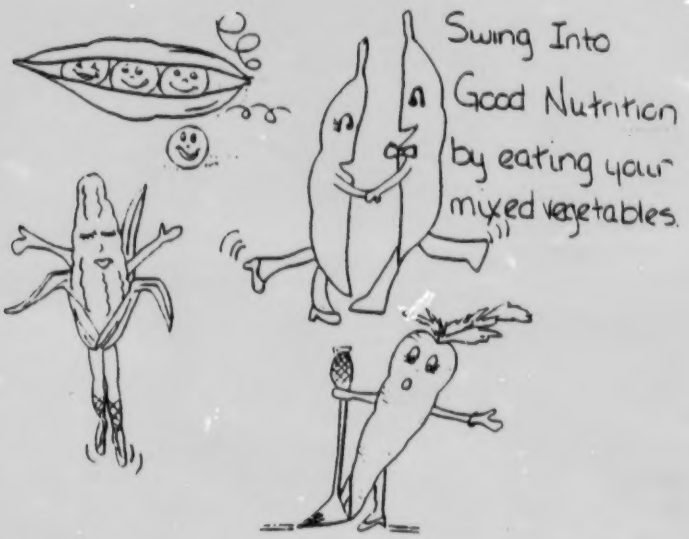
SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF MIXED VEGETABLES DOING SOMETHING, ABOUT 2- /2' TALL AND 3' WIDE.

THE MESSAGE SHOULD STATE: "SWING INTO GOOD NUTRITION BY EATING YOUR MIXED VEGETABLES."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.



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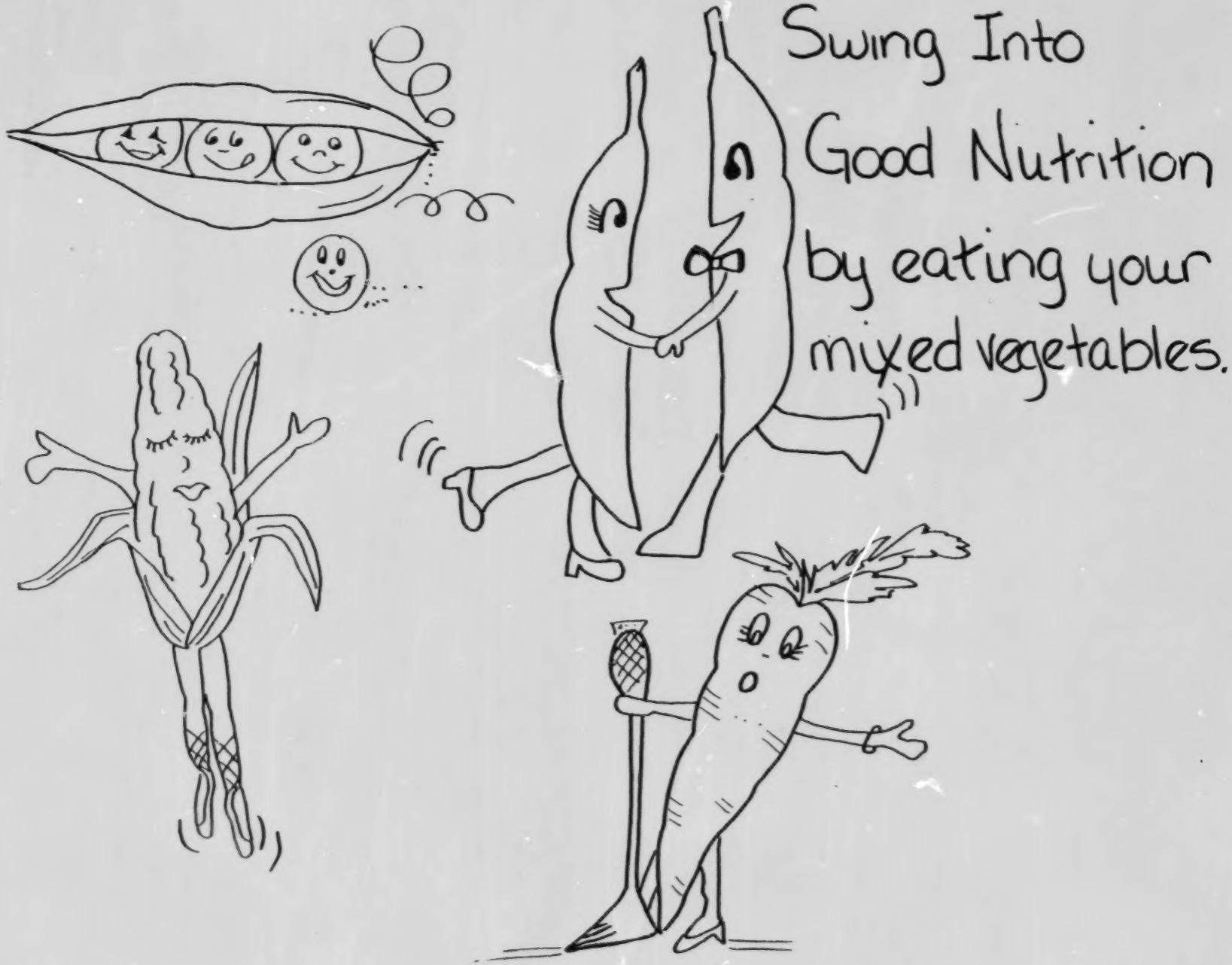

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF AN APPLE WITH A SLICE REMOVED, ABOUT 2-1/2' TALL.

THE MESSAGE SHOULD STATE: "BITE INTO THAT CRISP APPLE FOR GOOD NUTRITION."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.

Bite into that
Crispy Apple
for good health.

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A TOSSED SALAD AND DRESSING, ABOUT 2-1/2' TALL.

THE MESSAGE SHOULD STATE: "EAT THOSE LEAFY GREENS FOR ALL THE VITAMINS THEY GIVE."

SOURCE: PROJECT SNAC

OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR

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Eat those leafy greens
for all the vitamins
they give.

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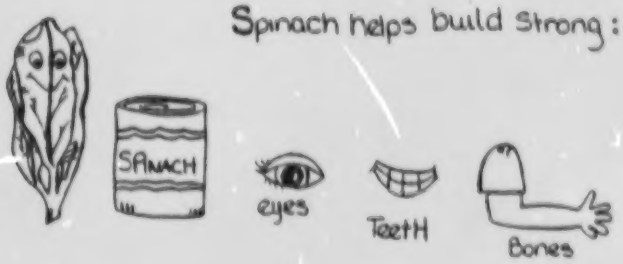
SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A SPINACH LEAF, CAN OF SPINACH, EYE, TEETH, AND BONES, ABOUT 1-1/2' TALL

THE MESSAGE SHOULD STATE: "SPINACH HELPS BUILD STRONG: EYES, TEETH, AND BONES."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR



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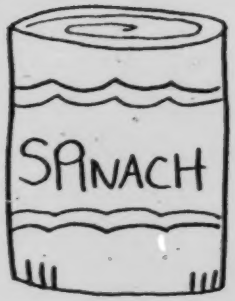
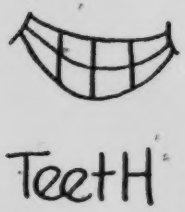


Spinach helps build strong:



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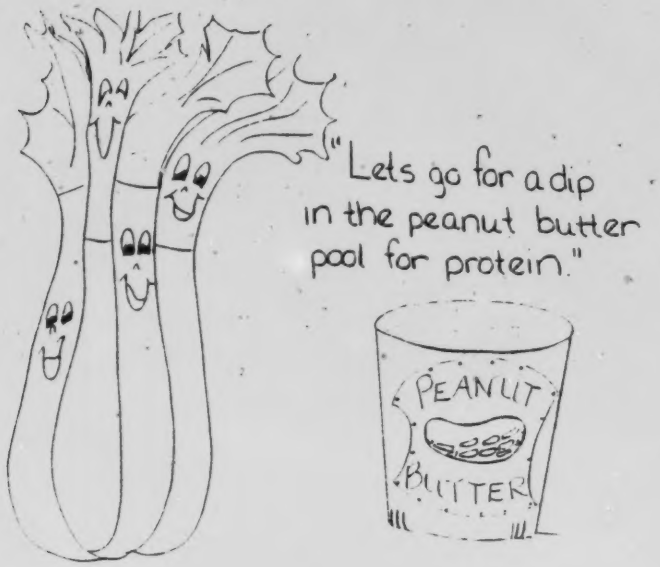
SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A CELERY STALK AND A JAR OF PEANUT BUTTER, ABOUT 2-1/2' TALL AND 3' WIDE

THE MESSAGE SHOULD STATE: "LET'S GO FOR A DIP IN THE PEANUT BUTTER POOL FOR PROTEIN."

SOURCE: PROJECT SNAC

OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR



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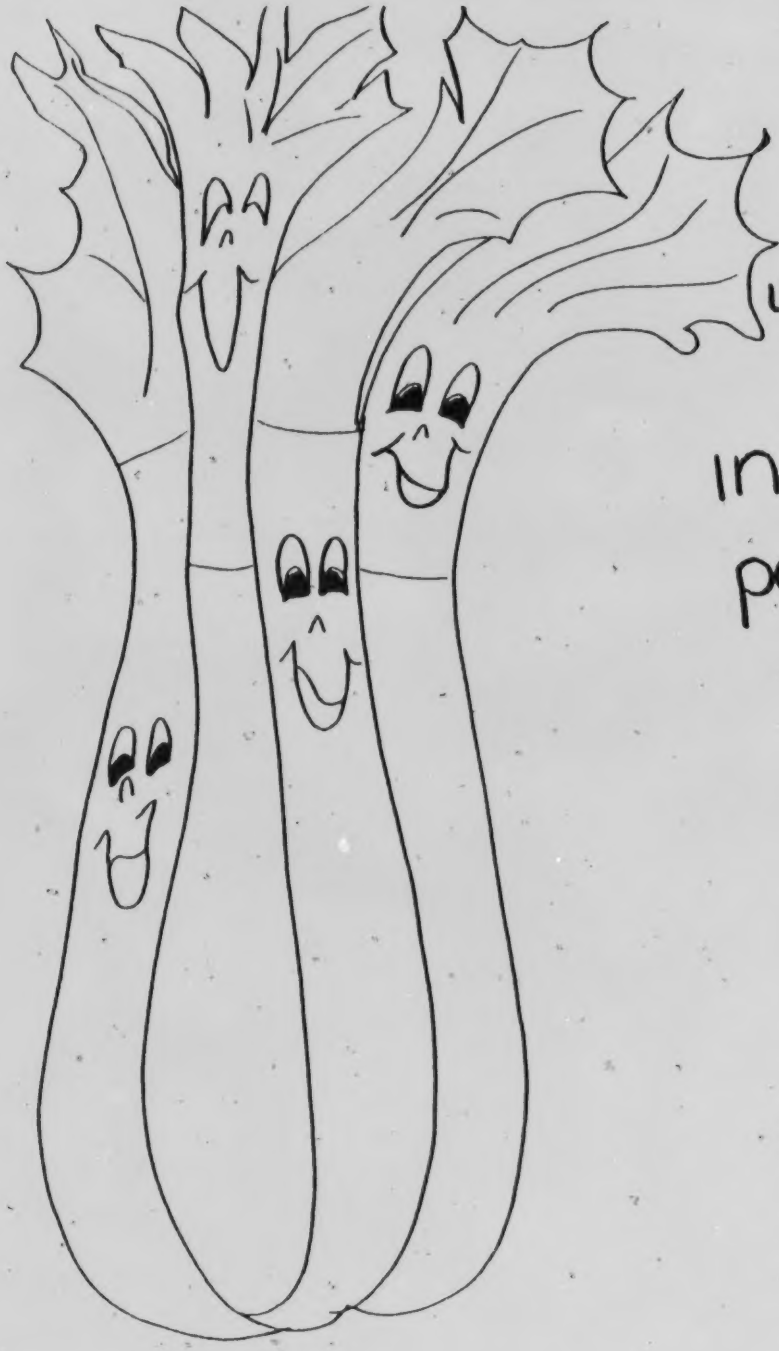
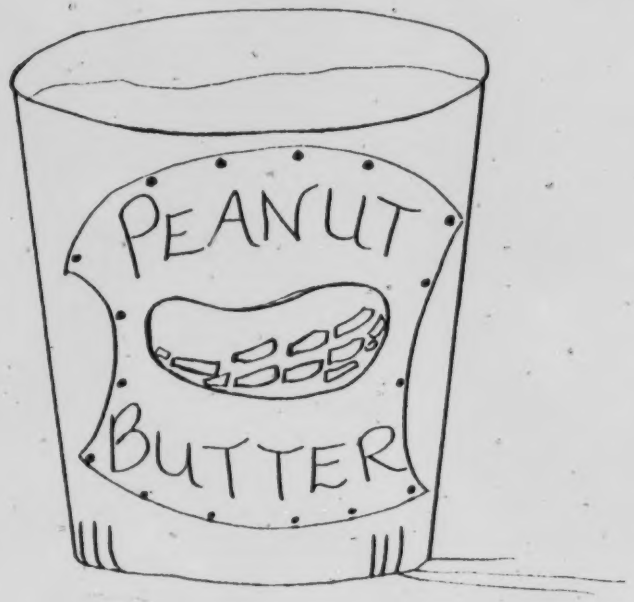


"Lets go for a dip in the peanut butter pool for protein."



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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A BOX OF RAISINS WITH RAISINS BY THE BOX, ABOUT 3' TALL

THE MESSAGE SHOULD STATE: "RAISINS MAKE YOUR DAY SUNNY BY PROVIDING YOU ALOT OF NUTRIENTS."

SOURCE: PROJECT SNAC OR

SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR

Raisins make your day
sunny by providing you
alot of nutrients.

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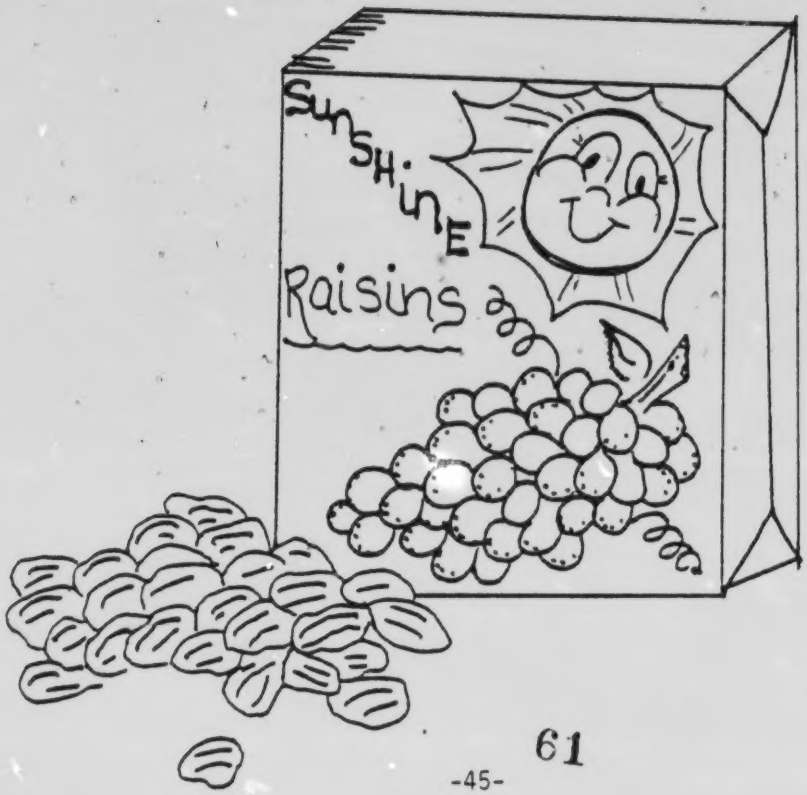
Raisins make your day sunny by providing you alot of nutrients.



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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A SPINACH LEAF HOLDING A BELL BAR, ABOUT 3' TALL

THE MESSAGE SHOULD STATE: "SAMMY SPINACH HAS LOTS OF VITAMINS FOR GOOD HEALTH."

SOURCE: PROJECT SNAC

OR

SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR

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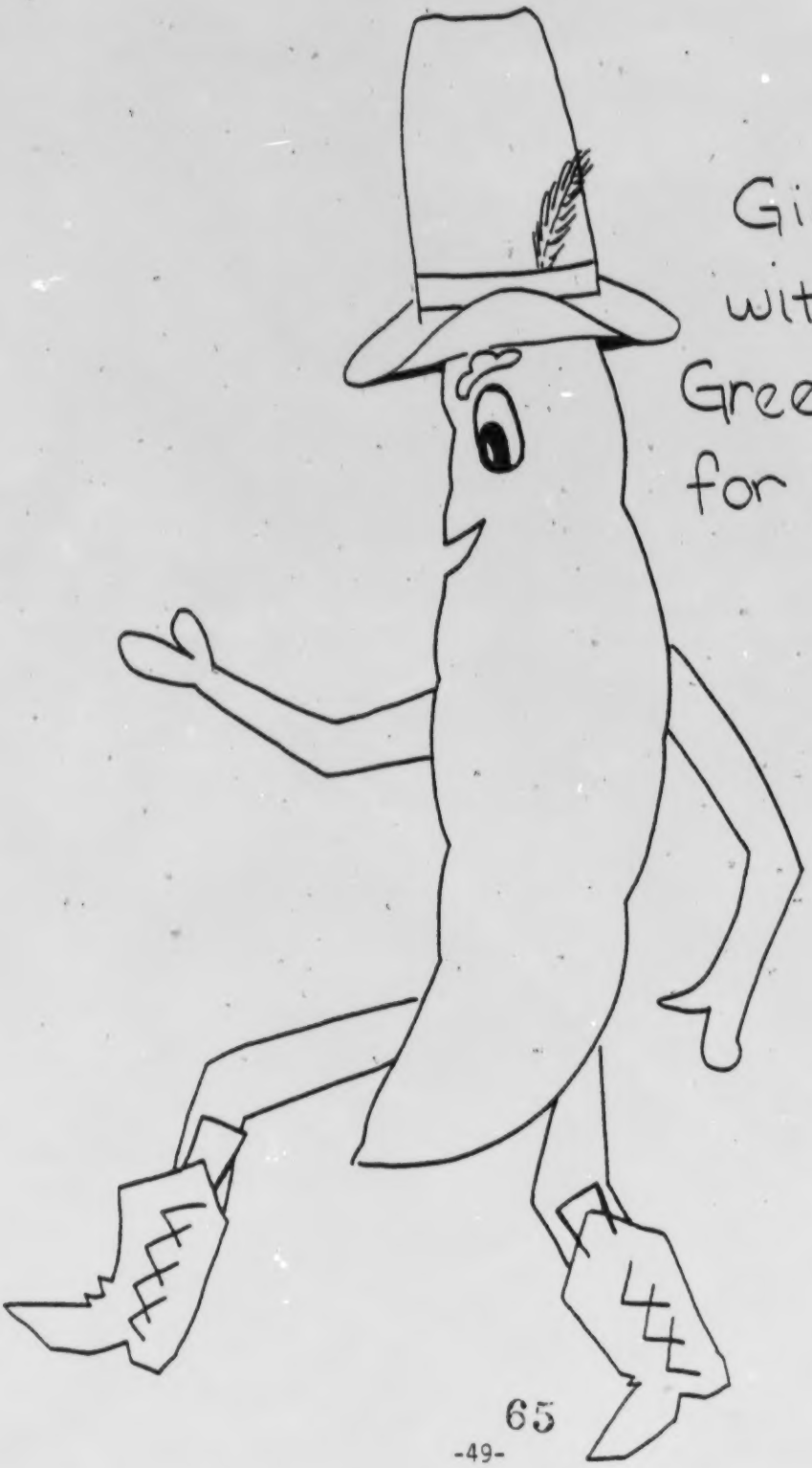
SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A GREEN BEAN WITH BOOTS AND A COWBOY HAT, ABOUT 3' TALL

THE MESSAGE SHOULD STATE: "GIDDY - UP WITH COWBOY GREEN BEANS FOR VITAMINS."

SOURCE: PROJECT SNAC

OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR



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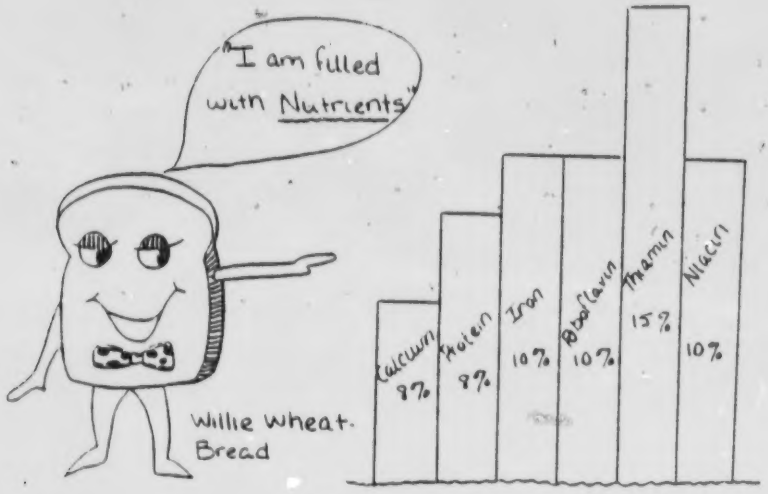
SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF WHOLE WHEAT BREAD WITH A GRAPH TO THE SIDE WITH
CALCIUM 8%
PROTEIN 8%
IRON 10%
RIBOFLAVIN 10%
THIAMIN 15%
NIACIN 10%

ABOUT 2-1/2' TALL AND 3' WIDE

THE MESSAGE SHOULD STATE: "I AM FILLED WITH NUTRIENTS"

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR.



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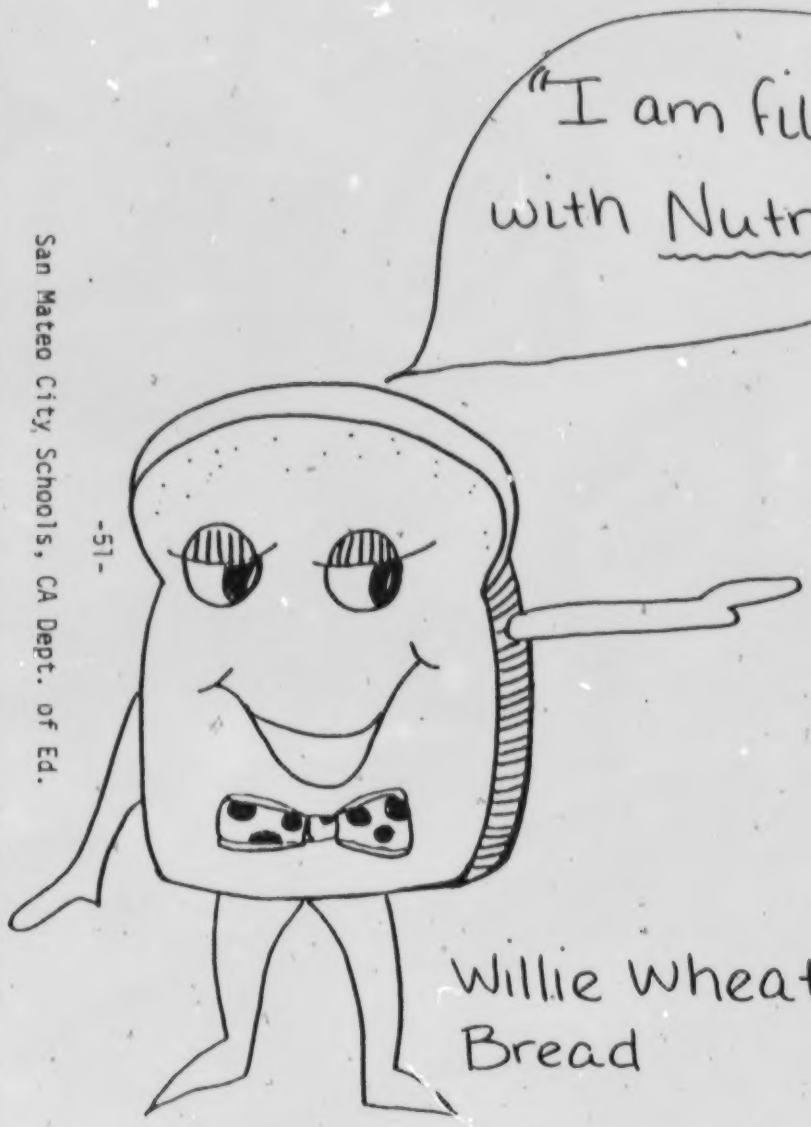

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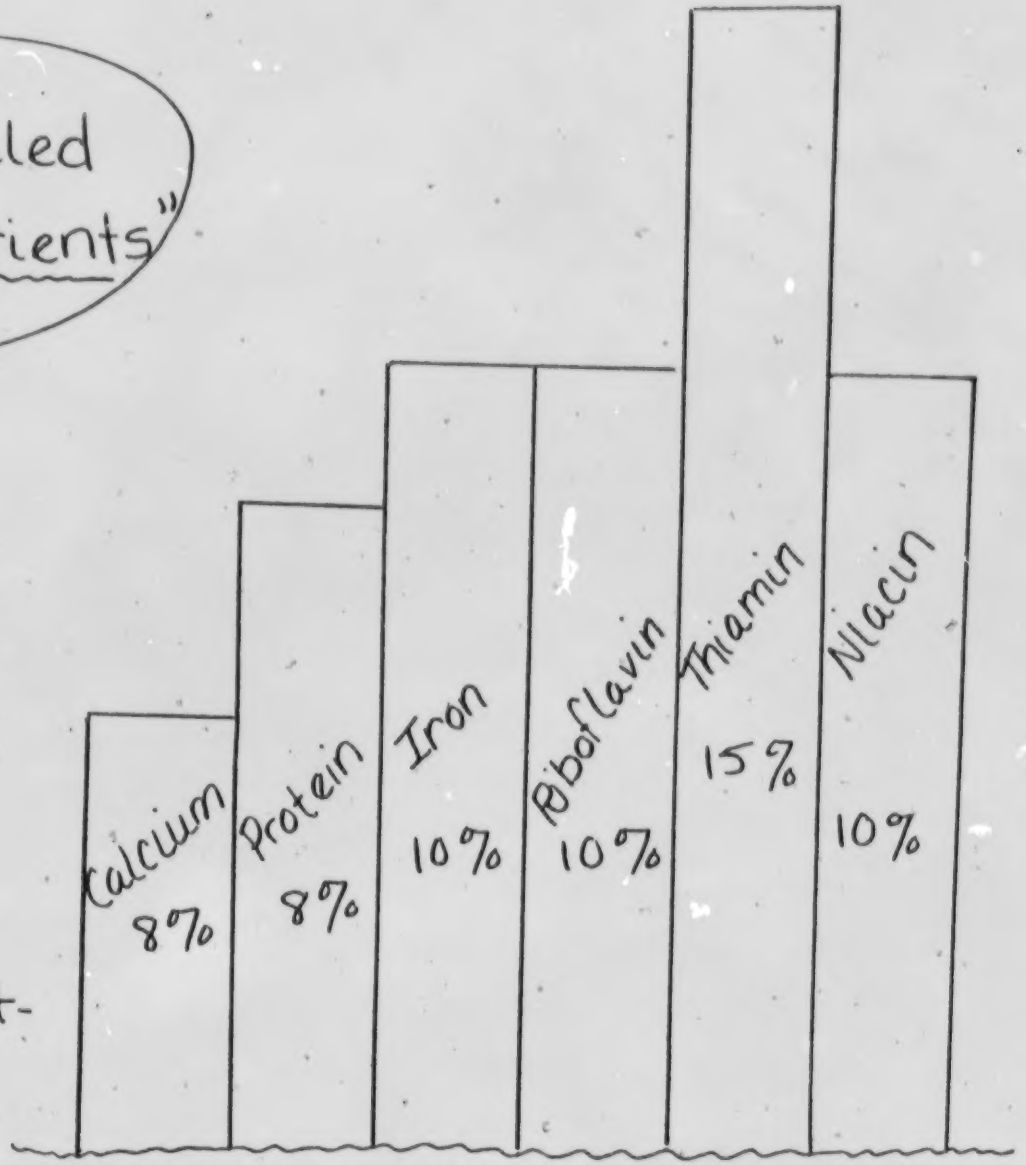

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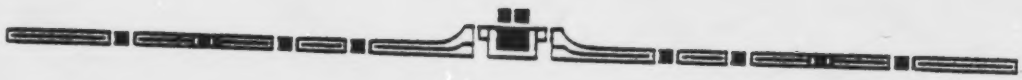

THE FOLLOWING POSTERS ARE DISPLAYED ON THE DAY EACH OF THE MAIN DISH ITEMS APPEAR ON THE SCHOOL MENU TO STIMULATE STUDENT INTEREST IN THE LUNCH.

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A HIPPOTAMUS HOLDING A SLOPPY JOE, ABOUT 3' TALL WITH SLOPPY JOE WRITTEN ON HIM.

THE MESSAGE SHOULD STATE: " "HAVE A SLOPPY JOE FOR LUNCH."

SOURCE: PROJECT SNAC OR
SEE NEXT PAGE FOR PATTERN
WHICH CAN BE USED ON
AN OPAQUE PROJECTOR

Have a Sloppy Joe for lunch!

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Have a sloppy Joe for lunch!

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF AN ANIMAL HOLDING TACOS WITH THE "TACO TERROR" ON HIM.
ABOUT 3' TALL

THE MESSAGE SHOULD STATE: "TACO TERROR SAYS, "JOIN ME FOR A TACO"

SOURCE: PROJECT SNAC
OR
SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR

Taco Terror says "Join me for a taco"

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Taco Terror says "Join me for a taco"

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF A GORILLA HOLDING ONTO PIECES OF CHICKEN WITH CHICKEN CHAMP WRITTEN ON HIM ABOUT 3' TALL

THE MESSAGE SHOULD STATE: "DON'T LET CHICKEN CHAMP BEAT YOU TO THE CHICKEN."

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR

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Don't let Chicken Champ beat you to the chicken !!

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SUGGESTED NUTRITION EDUCATION DISPLAYS OF INDIVIDUAL FOODS OFFERED ON THE SCHOOL'S MENU

DISPLAY: A PICTURE OF AN ANIMAL EATING SPAGHETTI WITH THE SPAGHETTI GETTER WRITTEN ON HIM, ABOUT 3' TALL

THE MESSAGE SHOULD STATE: "ARE YOU A CHOPPER OR A TWIRLER?"

SOURCE: PROJECT SNAC OR SEE NEXT PAGE FOR PATTERN WHICH CAN BE USED ON AN OPAQUE PROJECTOR

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Are you a chopper or a twirler?

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Menus subject to change.

SAN MATEO CITY SCHOOL DISTRICT LUNCH MENU

*FEBRUARY*1980*

FEBRUARY KINDERGARTEN MILK
18 days=$1.80
Exact change or Check

Free and reduced meals are available to qualifying students. Kindergarten brunches also available.

				1 Energy Conservation Menu Bag Lunch DELI DELIGHT SANDWICH Carrot and Celery Sticks Fresh Apple Chocolate, Whole, or Low-Fat Milk
4 CORN DOG ON A STICK/MUSTARD French Fries Fruit Cocktail Chunky Peanut Butter Cookie Whole or Low-Fat Milk	5 BEEF & CHEESE PIZZA Mixed Green Salad/Dr. Chilled Pears Peanut Snack Whole or Low-Fat Milk	"Sugarless Wednesday" 6 OVEN BAKED CHICKEN Bu. Peas Cornbread Applesauce Whole or Low-Fat Milk	7 SPAGHETTI WITH MEAT & CHEESE Bu. Green Beans Fresh Orange Whole or Low-Fat Milk	8 BEEF & BEAN BURRITO Bu. Corn Frozen Fruit Punch Cup Chocolate, Whole, or Low-Fat Milk
11 HOLIDAY	12 HOLIDAY	13 MICHI ROLL (Japanese Egg Roll) Marinated Bean Salad Fresh Orange Half Peanut Butter Cookie Chocolate, Whole, or Low-Fat Milk	14 PIZZA Fresh Green Salad Italian Dressing Peaches Milk	15 CHEESEBURGER W/CATSUP French Fried Potatoes Celery Sticks Fresh Apple Half Chocolate, Whole, or Low-Fat Milk
18 HOLIDAY	19 HOT DOG ON A BUN/ MUSTARD & CATSUP Tater Tots Frozen Orange Juice Cup Chocolate, Whole, or Low-Fat Milk	20 SPAGHETTI WITH MEAT SAUCE Bu. Green Vegetable Diced Pears Celery Sticks w/Peanut Butter Whole or Low-Fat Milk	21 BEEF TACO WITH CHEESE Shredded Lettuce Salad/W Dr Fruit Cocktail Chocolate Chip Cookie Whole or Low-Fat Milk	22 CORN DOG ON A STICK W/MUSTARD Bu. Peas Bag of Raisins Chocolate, Whole, or Low-Fat Milk
25 BEEF & CHEESE ENCHILADA W/MILD SAUCE Buttered Rice Fiesta Slaw Applesauce Chocolate, Whole, or Low-Fat Milk	26 CHILI MACARONI Corn on the Cob Fresh Orange Half Oatmeal Raisin Cookie Whole or Low-Fat Milk	27 BAKED BEANS AND FRANKS Bu. Carrots ½Peanut Butter Sandwich Pineapple Chocolate, Whole, or Low-Fat Milk	28 CHEESE PIZZA Tossed Green Salad w/ Italian Dressing Fresh Apple Half Peanut Snack Whole or Low-Fat Milk	29 SLOPPY JOE ON A BUN French Fries w/Catsup Celery Sticks Peach Crisp Dessert Chocolate, Whole, or Low-Fat Milk

DEAR PARENTS, Students may purchase meals in advance on a minimum of a weekly basis. Meal tickets are validated as meals are ordered. The checks may be made payable to CAFETERIA ACCOUNT rather than the individual school. You may prefer to purchase 5, 10, 15, or 20 meals at one time. The rates are as follows:

5 Days: Grades 1-5 $3.25, Grades 6-8 $3.50
10 Days: Grades 1-5 $6.50, Grades 6-8 $7.00
15 Days: Grades 1-5 $9.75, Grades 6-8 $10.50
20 Days: Grades 1-5 $13.00, Grades 6-8 $14.00

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NUTRITION NOTES

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TURN NUTRITION CONCERN 'NTO ACTION

"Nutrition Education Can Improve The Health Status Of The Child"

Physical attainment, though partly determined by heredity, is affected also by the nutritional status of an individual.

During the periods of rapid growth in infancy, childhood, and early adolescence, ones eating habits profoundly affect ultimate physical development in terms of size, strength, and ability to perform.

There are visible signs of poor nutrition that teachers may observe in their students:

Small for age
Weak or fragile bones
Susceptibility to diarrhea
Obesity
Decayed teeth
Tired in the morning (possibly due to missing breakfast)

The relationship of nutrition to emotional health and intellectual development is becoming increasingly clear:

Hungry children (and adults) have difficulty concentrating.

Deficiencies of certain specific nutrients may affect feelings, responses, and reactions in a variety of ways (e.g., forgetfulness, apathy, withdrawal, vague fears, mental depression, emotional instability) depending on the nutrient involved.

WHAT IS THE BEST WAY TO LEARN ABOUT A BALANCED DIET?

The Basic Four Food Groups are only one way to learn about nutrition. The question is, "Is it the best way?"

THE FOUR FOOD GROUP SYSTEM- A meal pattern guide in which the foods we eat are divided into four separate groups along with the minimum amounts of foos from the groups to be eaten daily. This guide is simple to use and easy to remember.

1. MEAT GROUP- 2 or more servings daily
   Beef, veal, pork, lamb, fish, poultry, eggs
   dry bean, dry peas, and nuts.

2. BREAD/
   CEREAL GROUP - 4 or more servings daily
   Whole grain and enriched breads and cereals and pastas

3. VEGETABLE/
   FRUIT GROUP - 4 or more servings daily
   Citrus fruit and other fruits and vegetables high in Vit C
   Dark leafy green or bright yellow vegetable for Vitamin A
   Other Fruits and vegetables

4. MILK GROUP - 2 or more servings for adults
   3 or more servings for elementary school child

USE OF THE FOUR FOOD GROUPS - The Four Food Groups System and other food groupings serve as a guide for determining nutritional needs and it is a way of introducing nutrition to young children. However, the nutrients necessary for growth and development should be included in the curriculum as soon as possible in order that children may learn the why as well as the what as far as good food choices are concerned.

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TRANSLATING NUTRIENTS INTO FOOD GROUPS

FOOD GROUP	KEY NUTRIENTS
Milk Group	Calcium Protein Riboflavin Vitamin D
Meat Group	Protein Thiamin Niacin Iron
Bread/Cereal Group	B Vitamins (Thiamin, Niacin, Riboflavin) Iron
Vegetable/Fruit Group	Vitamin C Vitamin A

Carbohydrates and fats are found in all the Food Groups as well as in EXTRA foods in which they are the primary nutrients.

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LEADER NUTRIENTS AND GOOD HEALTH

The Leader Nutrients: Three physiological functions of food are 1) to supply energy, 2) to build and repair body tissue, and 3) to regulate body processes. Food materials that supply these needs are called nutrients.

Nutrients may be divided into six general classifications:

1. Protein
2. Fat
3. Carbohydrate
4. Vitamins
5. Minerals
6. Water

Each nutrient performs itw own special job in building or maintaining the body, and no other can take its place. The lack of even one of these essential food elements will hinder the work of others.

NUTRIENT	MAJOR FUNCTIONS	IMPORTANT SOURCES
Carbohydrates	Energy	Grains and sugars
Fats	Energy	Oils, fats, meat, cream
Protein	Growth and repair of cells	Meat and meat substitutes Milk products
Leader Vitamins		
A	Skin health Resist infection	Dark green leafy, and bright yellow fruits and vegetables
B Complex	Helps release energy from carbohydrate, healty nerves	Whole grain and enriched breads and cereals
C	Helps hold cells together, resist infection	Citrus fruits, cabbage, tomatoes
D	Helps body use calcium to form bones and teeth	Vitamin D fortified milk (sunshine)
Leader Minerals		
Iron	Builds red blood cells	Red meat, breads and cereal
Calcium	Builds bones and teeth	Milk products, dark green vegetables
Iodine	Normal thyroid	Seafood, iodized salt

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Recommended Dietary Allowances, Revised 1980*
Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.
Food and Nutrition Board, National Academy of Sciences-National Research Council

age and sex group	weight kg	weight lb	height cm.	height in.	protein	fat-soluble vitamins: vitamin A	vitamin D	vitamin E	water-soluble vitamins: vitamin C	thiamin	riboflavin	niacin	vitamin B_6	folacin	vitamin B_{12}	minerals: calcium	phosphorus	magnesium	iron	zinc	iodine
					gm	μg *R.E.*†	μg ‡	mg α*T.E.* #	← mg. →			mg *N.E.* ¶	mg.	← μg. →		← mg. →					μg
infants																					
0 0-0 5 yr.	6	13	60	24	kg ×2.2	420	10	3	35	0.3	0.4	6	0.3	30	0.5**	360	240	50	10	3	10
0.5-1.0 yr.	9	20	71	28	kg ×2.0	400	10	4	35	0.5	0.6	8	0.6	45	1.5	540	360	70	15	5	50
children																					
1-3 yr.	13	29	90	35	23	400	10	5	45	0.7	0.8	9	0.9	100	2.0	800	800	150	15	10	70
4-6 yr.	20	44	112	44	30	500	10	6	45	0.9	1.0	11	1.3	200	2.5	800	800	200	10	10	90
7-10 yr.	28	62	132	52	34	700	10	7	45	1.2	1.4	16	1.6	300	3.0	800	800	250	10	10	120
males																					
11-14 yr.	45	99	157	62	45	1,000	10	8	50	1.4	1.6	18	1.8	400	3.0	1,200	1,200	350	18	15	150
15-18 yr.	66	145	176	69	56	1,000	10	10	60	1.4	1.7	18	2.0	400	3.0	1,200	1,200	400	18	15	150
19-22 yr.	70	154	177	70	56	1,000	7.5	10	60	1.5	1.7	19	2.2	400	3.0	800	800	350	10	15	150
23-50 yr.	70	154	178	70	56	1,000	5	10	60	1.4	1.6	18	2.2	400	3.0	800	800	350	10	15	150
51 + yr.	70	154	178	70	56	1,000	5	10	60	1.2	1.4	16	2.2	400	3.0	800	800	350	10	15	150
females																					
11-14 yr.	46	101	157	62	46	800	10	8	50	1.1	1.3	15	1.8	400	3.0	1,200	1,200	300	18	15	150
15-18 yr.	55	120	163	64	46	800	10	8	60	1.1	1.3	14	2.0	400	3.0	1,200	1,200	300	18	15	150
19-22 yr.	55	120	163	64	44	800	7.5	8	60	1.1	1.3	14	2.0	400	3.0	800	800	300	18	15	150
23-50 yr.	55	120	163	64	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	18	15	150
51 + yr.	55	120	163	64	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	10	15	150
pregnancy					+ 30	+ 200	+ 5	+ 2	+ 20	+ 0.3	+ 0.3	+ 2	+ 0.6	+ 400	+ 1.0	+ 400	+ 400	+ 150	11	+ 5	+ 25
lactation					+ 20	+ 400	+ 5	+ 3	+ 40	+ 0.5	+ 0.5	+ 5	+ 0.5	+ 100	+ 1.0	+ 400	+ 400	+ 150	11	+ 10	+ 50

* The allowances are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for detailed discussion of allowances and of nutrients not tabulated. See preceding table for weights and heights by individual year of age and for suggested average energy intakes.

† Retinol equivalents: 1 retinol equivalent = 1 μg. retinol or 6 μg. β carotene. See text for calculation of vitamin activity of diets as retinol equivalents.

‡ As cholecalciferol: 10 μg. cholecalciferol = 400 I.U. vitamin D.

α-tocopherol equivalents: 1 mg. d-α tocopherol = 1 I.U. See text for variation in allowances and calculation of vitamin E activity of the diet as α-tocopherol equivalents.

¶ N.E. (niacin equivalent) = 1 mg. niacin or 60 mg. dietary tryptophan.

‖ The folacin allowances refer to dietary sources as determined by *Lactobacillus casei* assay after treatment with enzymes ("conjugases") to make polyglutamyl forms of the vitamin available to the test organism.

** The RDA for vitamin B_{12} in infants is based on average concentration of the vitamin in human milk. The allowances after weaning are based on energy intake (as recommended by the American Academy of Pediatrics) and consideration of other factors, such as intestinal absorption; see text.

†† The increased requirement during pregnancy cannot be met by the iron content of habitual American diets or by the existing iron stores of many women; therefore, the use of 30 to 60 mg. supplemental iron is recommended. Iron needs during lactation are not substantially different from those of non-pregnant women, but continued supplementation of the mother for two to three months after parturition is advisable in order to replenish stores depleted by pregnancy.

DESTRUCTION AVAILABLE

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Journal of The American Dietetic Association

DIGESTION

Before our bodies can utilize the nutrients in the foods we eat, the food must be broken down to amino acids, simple sugars, and fatty acids and glycerol.

MOUTH:	Saliva breaks starch to double sugar and lubricates food.
STOMACH:	Proteins broken to amino acids by enzymes in the stomach.
SMALL INTESTINE:	Enzymes from pancreas split proteins to amino acids, fats to fatty acids and glycerol, and complete the reduction of starches to simple sugar.
	Vitamins and minerals in food dissolve so they can be used by the body.
	Nutrients pass across intestinal wall to blood plasma which takes nutrients to cells.
LARGE INTESTINE:	Remaining nutrients and water absorbed into body.
	Roughage, bacteria, mucous and dead intestinal cells are expelled from the body.

NUTRIENTS

Nutrients Defined: Chemical substances in the foods we eat that our body uses for energy, repair, and maintenance

Types of Nutrients:

PROTEIN	FATS	VITAMINS
CARBOHYDRATES	MINERALS	WATER

Body Composition:

65% oxygen
18% carbon
10% hydrogen
3% nitrogen
2% calcium
1% phosphorous
1% other chemicals

CALORIES

CALORIE - A unit which measures the energy value of foods to the body

CALORIE SOURCES:		
	Proteins	4 calories per gram
	Carbohydrates	4 calories per gram
	Fats	9 calories per gram
	Alcohol	7 calories per gram
	Vitamins, Minerals, Water	no calories

YOUR APPROXIMATE CALORIE NEEDS:

Women	Desirable weight in pounds X 16 calories
Men	Desirable weight in pounds X 17 calories
Boys 9-12	Desirable weight in pounds X 33 calories
Girls 9-12	Desirable weight in pounds X 20 calories
	Add 10% if you regularly take part in a competitive sport with daily practice

WEIGHT GAIN: The body stores energy not used. When excessive fat is stored in our bodies, we are overweight. Over 20% of people in the U.S. are overweight.

WEIGHT LOSS: For most people, decrease calories by 500-1000 per day for gradual, but progressive weight loss. To lose 1 pound of body fat, you must deprive your body of or use up 3500 calories.

500 calories less per day x 7 days = 3500 calories or 1 lb of true weight loss

10 TIPS TO PREVENT WEIGHT GAIN:

1. Eat a well balanced diet. This helps prevent craving for empty calorie snacks.
2. Eat broiled, boiled, or baked foods instead of fried foods.
3. Cut out "empty calories"
4. Exercise - walk more, drive less
5. Say no to second helpings
6. Skip high calorie bed-time snacks.
7. Skip high calorie sauces, gravies.
8. Don't add sugar to cereals, fruits, coffee, or tea.
9. Eat fruit for dessert instead of baked goods.
10. Weigh once a week -- keep a record.

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CALORIES (Continued)

CALORIES EXPENDED PER HOUR - Averages

Bicycling	200 - 600	Office Work	130
Dancing	290	Painting	150
Dressing	110	Ping Pong	350
Driving	110	Running	550
Exercise	280	Sitting	95
Lying Down	60 - 80		

WATER LOSS VS. BODY FAT LOSS:

The body is approximately 98% water. The sodium in your body helps to maintain a delicate but important balance between fluid in the cells and in the fluid between the cells.

Reducing salt intake will alter the balance and the water in the cells will pass out of the body through the kidneys. The same will occur on a starvation diet or a low carbohydrate, high-protein diet.

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PROTEIN

Proteins: Combinations of Carbon, Hydrogen, Oxygen & Nitrogen used in cell building

What They Do:

1. Build and repair all body cells and tissues
2. Used for energy or stored as fat if intake exceeds need

Composition: C, H, O, & Nitrogen form amino acids (Nitrogen is found only in protein)

Digestion: Protein is broken down to amino acids

Amino Acids = 20 types of protein building blocks

a) 12 can be made by the body from C, H, O, Nitrogen

b) 8 cannot be made - these are the essential amino acids. We must eat foods that contain these.

c) Amino Acids are the product of protein digestion. They travel to cells in plasma. Cells select the amounts and types of amino acids they need.

d) Most protein --→ amino acid digestion takes place in the stomach and small intestine.

Complete Proteins: Foods which supply all the amino acids (all animal proteins are complete)

Incomplete Proteins: Foods which do not supply all of the amino acids (all plant proteins are incomplete)

Protein Complementing: Combining incomplete proteins to get all the amino acids at the same meal; eg. dried beans + rice, or milk + peanut butter

Protein Defiency: Unlikely in U.S. diet. We get approximately 2 times our protein need daily. In severe deficiency, "Kwashiorkor" results.

Foods: Protein is a leader-nutrient in the MILK GROUP & MEAT GROUP. Several foods in the BREAD-CEREAL GROUP are good sources.

R.D.A.: 1 gram of protein for each kilogram (2.2 pounds) we weigh. (125 lbs. person needs 53 grams of protein per day.)

U.S.R.D.A.: 45* or 65** grams

*45 grams if protein quality is equal to or greater than milk protein.

**65 grams if protein quality is less than milk protein.

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FATS

What It Does:

1) Store Energy
2) Carries Fat Soluable Vitamins A, D, E And K
3) Provides Fatty Acids We Cannot Make

DIGESTION:

Fats are broken down to Fatty Acids and Glycerol in the Small Intestine.

SATURATED VS. UNSATURATED FATTY ACIDS:

Saturated fatty acids are solid at room temperature (Butterfat, Animal fat, Coconut oil).

Unsaturated fatty acids are liquid at room temperature (Corn, Soy, Peanut, Safflower Oils).

WHY FATS ARE ESSENTIAL TO US:

Provide unsaturated fatty acids our body needs but cannot make. These are called "essential fatty acids".

CHOLESTEROL:

A fatty substance present in all our cells. It is necessary to:

1) maintain cell structure
2) govern passage of nutrients in and out of cells
3) produce Vitamin D and sex hormones
4) form bile salts to aid in fat digestion

FOOD SOURCES:

Meat Group	Milk Group	Extra Foods
Beef, lamb, pork, chicken, eggs, nuts	Whole milk, cheese, ice cream	Butter, oils, Salad Dressing, Mayonnaise, oils

R.D.A.: 25-35% of total calories from fat.

CALORIES IN FAT: 9 Calories per gram

SOME CALORIE VALUES:

Mayonnaise	1 Tbsp.	110 Calories
Salad Oil	1 Tbsp.	125 Calories
Whole Milk	1 Cup	160 Calories
Skim Milk	1 Cup	90 Calories

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CARBOHYDRATE

WHAT IT DOES:

1) Provides energy for body
2) Stored as fat if intake exceeds need

FORMS:

1) Sugars:
   - Glucose: end product of all carbohydrate digestion, known as "blood sugar"
   - Fructose: fruit sugar (honey)
   - Sucrose: table sugar (glucose + fructose)
   - Lactose: milk sugar
2) Starch: primary Carbohydrate of vegetables and grains
3) Cellulose: indigestible starch form, a form of dietary fiber

DIGESTION: All Carbohydrates are used for energy as glucose or stored in liver as glycogen for reserve energy.

FOODS: Found in all Four Food Groups and Extra Foods

BREAD-CEREAL GROUP	VEG/FRUIT GROUP	EXTRAS
All	Fruits Root Vegetables	All Candy, Cake, Sugar, Honey
MEAT GROUP	**MILK GROUP**	
Dried Beans & Peas Peanuts	Milk Ice Cream	

R.D.A.: No specific number of grams of Carbohydrate are recommended because fat and protein can be converted to carbohydrate (and then to glucose) for energy needs.

Approximately 500 Calories from Carbohydrate per day is adequate.

U.S.R.D.A.: No U.S.R.D.A. has been made.

CALORIES IN CARBOHYDRATE: 4 Calories per gram

LOW CARBOHYDRATE DIETS: These are of necessity in high fat, high protein diets. The glycerol and amino acids are used for cellular energy needs. During this process, large amounts of ketones, by-products of fat metabolism, build up in the blood resulting in loss of appetite and a feeling of euphoria or well being. There is evidence that this is harmful.

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LOW CARBOHYDRATE DIETS: (Continued)

Protein metabolism produces by-products which are filtered through the kidneys. The high protein content of the low carbohydrate diet taxes the kidneys and may therefore be dangerous in individuals with a tendency to kidney problems.

The high-fat content of the diet is not recommended due to the possibility of early development of heart disease.

Weight loss will occur in most individuals and much of this will be due to water loss. The weight loss will not be permanent in most individuals who go off the diet unless they simultaneously reduce caloric intake to a weight-reduction level.

MINERALS

WHAT THEY DO:

Like Vitamins: regulate body processes

Unlike Vitamins: become part of the actual structure of the body (bones) and part of the working chemicals in our body (hemoglobin)

HOW MUCH? Very small amounts of major minerals (eg. CALCIUM, SODIUM, POTASSIUM, IRON)

Even smaller amounts of trace minerals (eg. ZINC, COPPER, IODINE, MANGANESE)

CALCIUM

What it does:	Builds bones and teeth Helps clot blood Aids muscle contraction Activates enzymes	
Where Stored:	Teeth and ends of bones. When other cells need it it is released to them.	
Deficiency:	Problems with teeth Reduced bone density & strength Muscle spasms	
R.D.A.:	Growing children	1300 mg
	Adults	800 mg
U.S.R.D.A.:	Adults	1000 mg
Food:	Milk	285 mg. Calcium per 8 oz.
	Hard Cheese	225 mg. Calcium per oz.
	Green Leafy Veg.	80-150 mg. per ½ cup serving

IRON

What It Does:	needed to make healthy blood and carry oxygen to cells	
Where Stored:	liver and blood	
Deficiency:	Iron Deficiency Anemia (pale blood, lack of energy)	
Who Needs Most:	Children have increased need during growth Menstruating and child-bearing women have increased need	
R.D.A.:	Growing children	10 mg
	Adult females	18 mg
	Adult males	10 mg
	Females over 55	10 mg
U.S.R.D.A.:	18 milligrams	
Foods:	MEAT GROUP	Liver, egg yolks
	VEGETABLE/FRUIT GROUP	Dark leafy greens
	BREAD/CEREAL GROUP	Enriched or whole grain

SODIUM AND POTASSIUM

1. Responsible for normal water balance between body fluids and cells
2. Sodium found in body fluids
   Potassium found in cells
3. Deficiency: unlikely (dehydration and irregular heart beat)
4. There is no R.D.A. for these minerals.
5. Sources: Normal diet supplies adequate amount

OTHER MINERALS

1. Only trace amount needed
2. Supplied by foods that contain other necessary nutrients

   Copper -- needed to make hemoglobin

   Zinc and Chromium -- needed to make certain hormones

   Iodine -- helps thyroid gland work

   Cobalt and Selenium -- essential to formation and working of certain vitamins

   Fluorine -- strengthens enamel of teeth

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VITAMINS

Vitamins: "Catalysts" which help regulate the body processes
"Vita" (necessary) "min" (life)

VITAMIN A - Fat Soluble

What It Does: helps keep skin and mucous membranes healthy
helps bones and teeth grow
good for night vision

Deficiency: stunted growth; dry, flakey skin; night blindness

Overdose: occurs from taking large amounts (eg. 50,000 IV's) daily for several months and can cause lack of appetite, itchy skin, tender swelling of bones, irritability

Foods:

MEAT GROUP	MILK GROUP	VEG/FRUIT	EXTRAS
Eggs, liver	Fortified milk	Carrots	Butter
	Cheddar cheese	Sweet potatoes	Fortified
		Cantaloupe	Margarine
		Apricots	
		Dark leafygreen	

R.D.A.: 2500 I.U. * 4-6 year olds
3300 I.U. 7-10 year olds
5000 I.U. Adults

U.S.R.D.A.: 5000 I.U. (includes margin of safety for most people above minimum body needs)

VITAMIN B COMPLEX - A group of more than 15 water-soluble vitamins

B_1 also called Thiamin
B_2 also called Riboflavin
Niacin
B_{12}
Folic Acid also called folacin

What They Do:
1) keep nervous system healthy
2) release energy from food
3) Promote healthy appetite and digestion

Deficiencies:

Thiamine	Beri-Beri
Riboflavin	Ariboflavinosi (a= without)
Niacin	Pellagra
B_{12}	Pernicious Anemia
Folic Acid	Folic Acid Anemia

*International Units

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VITAMIN B COMPLEX (Continued)

Foods:	Thiamine	MEAT GROUP, esp. pork and eggs BREAD & CEREAL GROUP
	Riboflavin	MILK GROUP MEAT GROUP
	Niacin	MEAT GROUP (peanut butter esp. good) BREAD & CEREAL GROUP
R.D.A. - by age	Thiamine:	Approximately 1.0 milligrams varies with age need based on carbohydrates in diet
	Riboflavin:	1.1 - 1.8 grams
	Niacin:	12-16 mg - children 4-10 years 18 mg - adult male 13 mg - adult female
	B_{12}:	1.5 - 2.0 micrograms - children 4-10 years 3.0 micrograms - adults
	Folic Acid:	.2 milligrams - 4-6 years old .3 milligrams - 7-10 years old .4 milligrams - adults

U.S.R.D.A. - generous levels which provide margin of safety above minimum body needs for most nutrients

Thiamine	1.5 milligrams
Riboflavin	1.7 milligrams
Niacin	20 milligrams
B_{12}	6 milligrams
Folic Acid	0.4 milligrams

VITAMIN C -- Water soluble (also known as Ascorbic Acid)

What It Does:	Protects body against infection Helps make cementing materials that hold body cells together Helps heal wounds and broken bones
Deficiency:	Scurvy (bleeding gums, poor wound healing, susceptibility to infection)
Overdose:	Unlikely - not stored in body
Foods:	VEGETABLE/FRUIT GROUP (primary source)

Citrus fruits	Strawberries	Canteloupe
Pineapple	Broccoli	Raw Cabbage
Tomatoes	Potatoes	

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VITAMIN C - (Continued)

R.D.A.: 40 mg - 4-10 years old
45 mg - Adults

U.S.R.D.A.: 60 mg - (provide wide margin of safety)

VITAMIN D - Fat Soluble ("The Sunshine Vitamin")

A group of about 10 fat-soluble vitamins. Only 2, D_2 and D_3 are important in nutrition. D_3 is formed in the skin when the body is exposed to sunshine.

What It Does: Helps absorb calcium in the digestive tract and build calcium and phosphorous into bones

Deficiency: Rickets (poorly developed bones of low density and strength)

Overdose: After 1 to 3 months of large intake, these symptons may occur - loss of appetite, thirst, frequent urination, constipation, pallor, dehydration, calcification of long bones

Foods:

MILK GROUP	MEAT GROUP
Fortified Vit. D Milk	Eggs Tuna Salmon

R.D.A.: 400 I.U. for all ages

U.S.R.D.A.: 400 I.U. for all ages

VITAMIN E - Fat Soluble

What It Does: In lower animals, maintains normal muscle function, brain and blood cells

Protects vitamin A and carotene

Deficiency: Not found in general population

Foods: Widely distributed

MILK GROUP	MEAT GROUP	VEG/FRUIT GROUP	BREAD/CEREAL
Milk	Pork Liver Egg Yolks	Green Leafy Vegetables	Whole Grain Cereals

R.D.A.: Expressed as Vit. E activity
9-15 I.U. (increases slightly with age)

U.S.R.D.A.: 30 I.U.

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VEGETARIAN VOCABULARY

VEGETARIANISM is a general term that applies to those who do not use flesh foods in their diets (although some vegetarians will eat fish). There are however, different kinds of vegetarians. Here is a brief glossary relating to vegetarianism:

LACTO-VEGETARIANS use dairy products such as milk, cheese and butter.

LACTO-OVO-VEGETARIANS also include eggs in their diet.

MACROBIOTICS is a Zen Buddhist dietary system that strives for a progressively limited diet according to spiritual development. The ultimate objective is a mono diet of brown rice.

MONO-VEGETARIANS eat only one food, such as brown rice or soybeans.

NATURAL FOODS are pure, unrefined, and unprocessed foods without additives or artificial ingredients.

NATURAL VEGETARIANS will not eat refined or processed foods, such as sugar or bleached flour. Some will eat only raw, uncooked foods.

ORGANIC FOODS are those that are grown without the use of chemical fertilizers or pesticides.

PURE VEGETARIANS only use grains, legumes, nuts, fruits, and vegetables. Some pure vegetarians will not eat honey, but others will.

VEGANS are pure vegetarians who, for ethical reasons, refrain from using any animal products such as leather. Vegans often refuse vaccinations because they are prepared from animal cultures.

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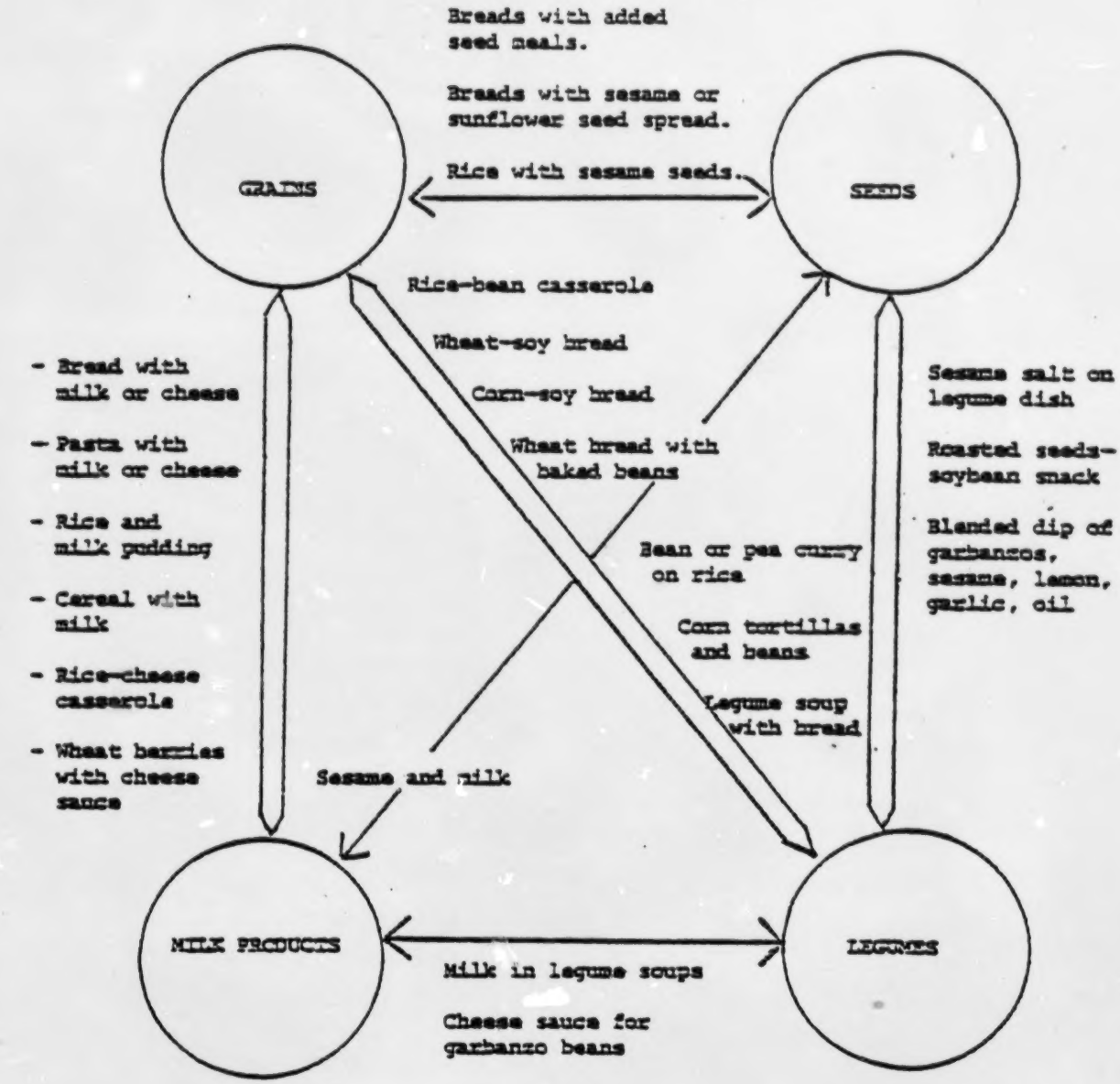
CHART II

SUMMARY OF COMPLEMENTARY PROTEIN RELATIONSHIPS


Breads with added seed meals.
Breads with sesame or sunflower seed spread.
Rice with sesame seeds.
GRAINS
SEEDS
Rice-bean casserole
Wheat-soy bread
Corn-soy bread
Wheat bread with baked beans
Bean or pea curry on rice
Corn tortillas and beans
Legume soup with bread
- Bread with milk or cheese
- Pasta with milk or cheese
- Rice and milk pudding
- Cereal with milk
- Rice-cheese casserole
- Wheat berries with cheese sauce
Sesame and milk
Sesame salt on legume dish
Roasted seeds-soybean snack
Blended dip of garbanzos, sesame, lemon, garlic, oil
MILK PRODUCTS
LEGUMES
Milk in legume soups
Cheese sauce for garbanzo beans

Means complementarily more generally confirmed between several items in each group.

Means complementary relationship demonstrated only between a few items in each group.

Courtesy of Frances Moore Lappe' from Diet For A Small Planet, Ballantine Books, New York.

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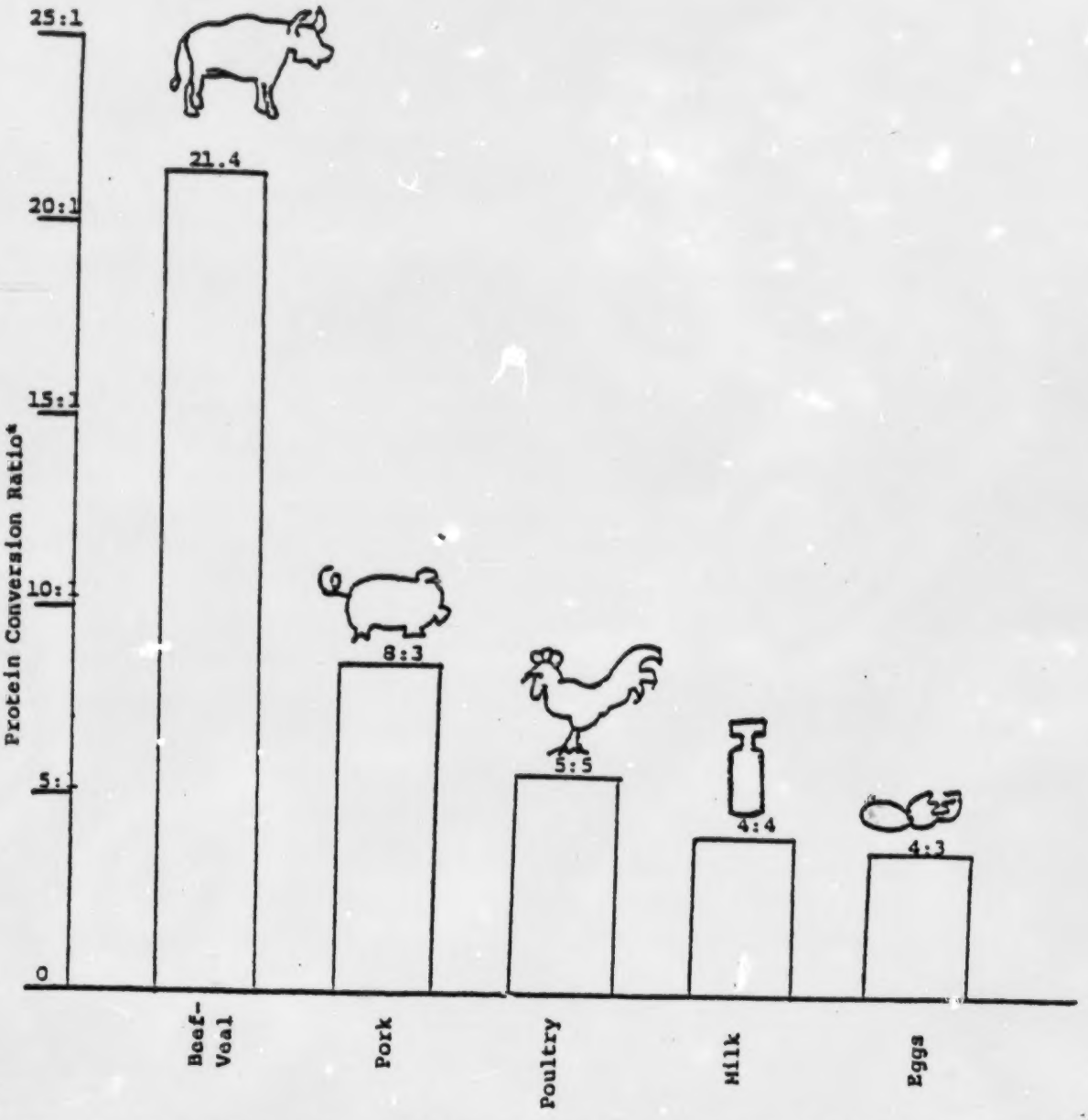
LIVESTOCK PROTEIN CONVERSION EFFICIENCY



*Number of pounds protein fed livestock to produce one pound protein for human consumption.

Courtesy of Frances Moore Lappe from Diet For A Small Planet, Ballantine Books, N.Y.

PRESERVING NUTRIENTS IN THE KITCHEN

WHY COOK FOODS AT ALL?

1. Cooking softens the cellulose or fiber of many plant foods and makes the nutrient available to us.
2. Some nutrients are released when food is heated.
3. Cooking destroys some toxic substances in foods (like soybeans).
4. Cooking makes some foods palatable.

WHAT PRECAUTIONS SHOULD YOU TAKE IN COOKING TO PRESERVE NUTRIENTS?

Meats: Do not over cook or over brown as high temperatures for a long time can considerable damage their protein content.

Fats: Fats spoil by becoming rancid when exposed to light and heat. When rancid, fats can destroy vitamins and cause illness.

Oils -- store in refrigerator in airtight containers protected from light

Foods containing large amounts of oil (whole grain flours and nut meats) need cool, airtight storage.

Nuts in the shell are protected fairly well.

Vegetables-Use a steamer or cook with a small amount of water to reduce the loss of water-soluble vitamins (Vitamin C and B Complex)

Pressure cooking reduces cooking time and nutrient losses even more.

Vitamins: Fat soluble vitamins A, D, E are more stable in cooking than water soluble vitamins B & C.

Vitamin A -- is stable during mild cooking but destroyed in frying when oil is kept at high temperatures.
Vitamin A in butter and margarine is destroyed when the oil goes rancid.

Vitamin D -- is stable in cooking and storage.

Vitamin E -- is lost when fats go rancid.

Vitamin C -- to retain this vitamin in citrus fruit juices, store in cold, airtight, dark space. Do not add making soda to vegetables because the alkali will destroy the Vitamin C.

Thiamin (B) destroyed by heat and air (eg. toast has 10 to 30% less thiamine than bread)

Riboflavin (B_2) destroyed by light

To protect riboflavin in milk, our best source, store milk in cartons or dark colored glass. Light in a clear glass bottle, 50% of riboflavin is destroyed.

Niacin -- Most stable B Vitamins, but lost from food by leaching into cooking water.

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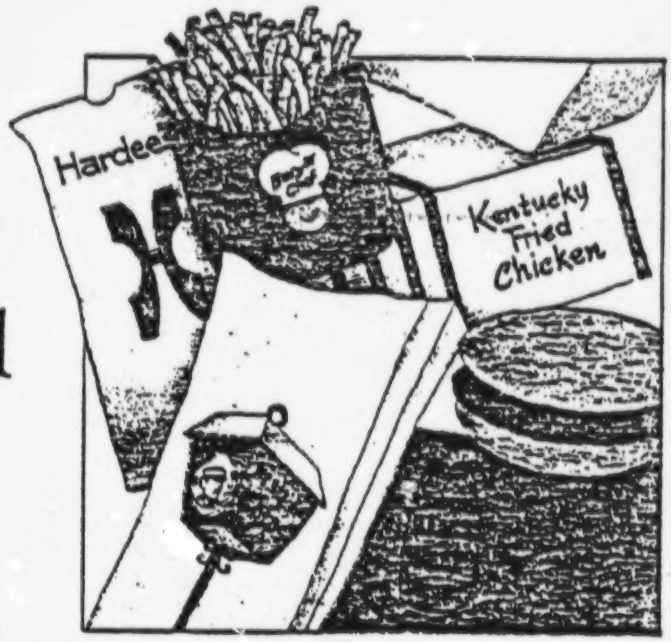
Minerals: The main concern here is the minerals that are leached from foods that are cooked in large amounts of water.

SUMMARY:

To Protect Nutrients:

1. Do not overcook foods.
2. Cook vegetables in small amounts of water.
3. Use the cooking water for soups or sauces.
4. Do not let fats go rancid.
5. Store fresh foods in cool areas preferably dark and airtight.

How Nutritious Are Fast-Food Meals?



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By 1980, if the present trend continues, Americans will eat half their meals outside the home. Doubtless we will eat many of those meals at McDonald's, Kentucky Fried Chicken, Hardee's, or at one or more of the many other fast-food chains that even now serve up some $10-billion worth of meals a year.

Reasons for the growing popularity of fast-food chains appear obvious enough. For one thing, the food is generally cheap as restaurant food goes. The most frequently ordered meal at McDonald's—a "Big Mac" hamburger sandwich, french fries, and a chocolate shake—costs only $1.75. That's a bargain when you consider the saved time and effort of the persons who would otherwise cook and clean up at home. The food is filling. And, judging by the fact that customers return to the successful chains time and again, many Americans like the way it tastes.

But as fast food assumes an ever more significant role in the diet, it's appropriate to inquire about the nutritional value of such assembly-line eating. That's what CU concentrated on in this project.

We bought and tested meals typical of those served up at eight of the biggest chains in the country: Burger Chef, McDonald's, and Burger King, which specialize in variations on the hamburger theme; Pizza Hut; Kentucky Fried Chicken; Hardee's, which builds its meals around a pseudo-steak sandwich or hamburger; Arby's, which serves roast beef sandwiches; and Arthur Treacher's Fish & Chips, which specializes in breaded fried fish.

We will go into detail on our tests and results later. But first, some highlights:

- The meat in McDonald's "Big Mac" hamburger sandwich weighs about 25 per cent less than the meat in Burger Chef's "Super Shef" and Burger King's "Whopper." Yet the McDonald's meal provided ample protein (as much as Burger King's, for example).
- Pizza Hut is the protein champion by far (its "Supreme" 10-inch pizza contains plenty of cheese and other protein-rich foods). But none of the other seven meals tested was inadequate in protein.
- Nearly all the meals were too heavy on calories. Several of them provided almost one-half the daily ration of calories needed by the typical adult male. Thus, it's likely that a man who ate at one of these chains regularly, and also ate two other substantial meals a day, would put on weight, especially if he sat behind a desk most of the time between meals. (A deskbound woman would put on more weight because she needs fewer calories.)
- A lot of those excess calories come in a form almost useless from a nutritional point of view—sugar and other sweeteners that provide a quick shot of energy but no nutrients. Many of these "empty calories" are to be found in the beverage—either a "thick shake" (not to be confused with a *milk* shake, about which more later) or a cola drink.
- All the meals were deficient in at least a few nutrients usually considered essential in a well-rounded diet. A small nutrient deficiency is not a matter of great concern. But when a meal falls short in 10 essential nutrients, as Arthur Treacher's did, "Fish & Chips" lovers had best start thinking carefully about what they eat the rest of the day.

SOME NUTRITIONAL RULES OF THUMB

The table on page 230 shows the total weight of each meal and the weight of the individual constituents. More significant are the columns showing the total calories and the amounts of protein, carbohydrate, and fat. Those columns summarize the nutritional pluses and minuses of each meal. Here's a simple guide to interpreting the nutritional information in the table:

Calories. As a guideline for the amount of calories one should consume each day, the National Academy of Sciences-National Research Council (NAS-NRC) has established a Recommended Daily Dietary Allowance (RDA) for both

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sexes and for various age groups and body weights. For the typical adult man between the ages of 23 and 50, the calorie RDA is 2700; for children from 7 to 10, the calorie RDA is 2400. (The "typical adult man," it should be noted, is 5 feet 9 inches tall and weighs 154 pounds. Bigger men need somewhat more calories; smaller men, somewhat less. Given equal size and weight, women need slightly fewer calories than men.) The calories, which are measurements of energy, come from three principal components of food—protein, carbohydrate, and fat.

Protein. Known as the body's builder and repairer, protein consists of a complex variety of amino acids. Meat, poultry, and fish are rich protein sources. So are milk and most milk products. (But not butter; that's largely fat.) Legumes—dried beans, peas, lentils, and the like—also have lots of protein, as do eggs and peanut butter. The NAS-NRC has established a guideline RDA for protein. For the typical adult man it would be 56 grams; for the typical 7-to-10-year-old child, male or female, 36 grams.

Carbohydrate. Carbohydrates are often associated with the empty calories of refined sugar. But carbohydrates also come from the starches in potatoes and cereal grains and the sugars natural to many other foods that contain a variety of essential nutrients—vitamins and minerals. A good daily diet should include some bread and other grain products, as well as vegetables and fruit. If it does, it will include a certain amount of carbohydrate. But table sugar and other sweeteners are carbohydrate sources that contain only empty calories. There is no specific requirement for carbohydrates in the diet, nor has there been a guideline set for the amount of carbohydrate humans need daily, although the NAS-NRC Food and Nutrition Board has recommended 100 grams as a minimum. Nutritionists generally agree that the amount needed is low, but all our fast-food meals exceed 100 grams of carbohydrates—and thus, as only one of three daily meals, could contribute to a daily diet likely to be overly rich in carbohydrates. Your best guideline is to make sure your family's carbohydrates come mainly from fruit, vegetables, bread, and cereals, rather than from sugar or sweetened food.

Fat. This third source of energy is the one that's usually right before your eyes—on the meat, in the frying pan, in the bottle of oil, or as butter or margarine. It's the most concentrated source of energy, because one gram of fat is converted into nine calories, not the four calories that a gram of protein or carbohydrate produces. Thus, a little fat goes a long way, and a little more goes too far. You do need some fat; it's the only source of linoleic acid (an essential nutrient), and it's a carrier for vitamins A, D, E, and K. There are no guidelines for how much fat one should eat daily. Suffice it to say that most Americans get ample fat, usually far more than they need. Since fat converts into so many calories per gram, it's a good food component to cut down on if your daily diet includes more calories than it should.

Other nutrients. The body needs many vitamins and minerals as well as protein, and a well-balanced diet, one that contains a variety of foods, will include them all. Recommended Daily Dietary Allowances have not been established for

WHY WE DIDN'T FEED RATS THIS TIME

When CU reported on the nutritional value of breakfast cereals in the February issue, we noted that comparisons could best be made through studies of how rats fared on the cereals. Yet in this report on fast-food meals we compare the nutritional value of the ingredients without having fed the food to rats. How come?

Packaged cereal is a highly processed food. One can't assume that corn will behave like corn in the body once a manufacturer tortures it into *Quisp* or *Sugar Pops*. The food served by fast-food chains, on the other hand, is relatively "natural." We can measure the nutrients through recognized microbiological methods and predict their behavior in the body with accuracy.

Protein is a good example. We know the quality and biological availability of protein from ground beef, chicken, cheese, fish, and other foods. Therefore, a laboratory measurement of the amount of such natural foods present in a meal tells us enough of what we need to know about the adequacy of the protein content. But we don't know what the quality of protein in breakfast cereals is after the cereal-derived starches, flours, and grains have been processed. Some of these proteins may complement each other—and thus improve overall protein quality—and some may not. One good way to determine the quality of such artificial products is to feed them to growing animals and see how the animals make out.

IODINE: A POTENTIAL PROBLEM

During our analyses of the meals served at fast-food chains, CU found one nutrient, iodine, present in surprisingly large quantity. On average, the fast-food meals tested for the accompanying report contained more than 30 times the Recommended Daily Allowance for iodine established by the National Academy of Sciences-National Research Council. Small amounts of iodine are necessary in the diet, mainly to prevent goiter. But no one has established how much is too much.

Can a continued high intake of iodine do harm? A recent review made by the Federation of American Societies for Experimental Biology for the Food and Drug Administration concluded that "adverse reactions to iodine in food are not a significant clinical or public health hazard." Yet little is known about a diet that contains as much iodine as we found in fast-food meals, nor did the review mentioned consider regular consumption of such high levels of iodine. It is known that too much iodine could affect the proper functioning of the thyroid gland. Thus, the review made for the FDA concluded that the amounts of iodine in the American diet should be evaluated periodically. We hope the FDA heeds the suggestion.

Where does all that iodine come from? Some of it may come from the iodized salt used in the preparation of the fast-food meals, but not all of it—or the meals would be inedible. There are two other likely sources: the rolls, bread, and breading made by bakeries that probably use high levels of iodates in their processes; or from residues of iodine compounds that may have been used to clean and sterilize food-processing equipment.

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every known essential nutrient. But our consultant did analyze the fast-food meals for a host of nutrients for which RDA's do exist. These include: folacin (folic acid), niacin, thiamine, riboflavin, pyridoxine, vitamins B_{12} and C, total vitamin A (both retinol and carotene), phosphorus, calcium, magnesium, iron, zinc, and iodine. Our consultant also analyzed the meals for biotin, pantothenic acid, and copper—nutrients for which the Food and Drug Administration has established labeling guidelines—and for total minerals, fiber, and moisture. We judged a meal deficient in a nutrient if it failed to provide one-third the daily allowance guideline.

THE BEVERAGE PROBLEM

The nutritional booby trap common to all the fast-food meals we tested is the beverage. Both the shakes and the cola drinks contributed significantly to the general overabundance of calories and to the excessive amount of carbohydrate found in our analyses.

All the shakes are called "thick" shakes—perhaps because they are indeed thick, perhaps because the words "thick" and "milk" have a rough resemblance. They are rarely milk shakes. Milk shakes contain whole milk and ice cream; the sweet, heavy froths served at these fast-food chains usually do not. Judging by the fact that the shakes did contribute to the protein content of the meals, however, they no doubt do contain an appreciable amount of nutritious fat-free milk solids in addition to an appreciable amount of sweetener and chemical thickener. Our shakes averaged about 334 calories, most of them empty calories. (Note, by the way, that the table gives the weight of beverage in avoirdupois ounces, not the volume in fluid ounces. That's because the shakes are so thick and puffed with air that we couldn't measure their volume accurately.)

The cola drinks are, of course, familiar beverages that contain nothing of nutritional value. Our colas averaged 111 calories, all devoid of other nutrients. Cola drinks contain the drug caffeine (as they must by law to be labeled "cola"). The cola drinks we analyzed averaged about 30 milligrams (mg) of caffeine; a brewed cup of coffee contains about 100 mg of caffeine, on average.

Given the American appetite for shakes and cola drinks, and given the enormous advertising of cola drinks, one can hardly expect fast-food chains to refrain from offering them. Unfortunately, the ones we visited offered little other choice. Everyone would be better off, in our opinion, drinking water instead of the shakes and cola drinks served at these establishments. If you can't wheedle a glass of water off the assembly line, unsugared tea or black coffee is the next best bet for an adult (neither offers any nutritional value, but neither do they add appreciably to the calorie count), and milk, juice, or a low-calorie soda, where available, would be better for children.

People on low-sodium diets face a problem at most fast-food chains. The specialty item is almost always presalted, and the potatoes are usually presalted. The Pizza Hut meal had the highest sodium content of all—four grams. That translates into about 1½ teaspoons of table salt—a full day's supply for a person on the mildest of sodium-restricted diets. The six meat meals each contained nearly one teaspoonful of salt, still a lot for someone on a diet. We found only negligible amounts of sodium in the Arthur Treacher's meal.

THOSE MISSING NUTRIENTS

The six nutrients most commonly in short supply in fast-food meals are: biotin, folacin, pantothenic acid, total vitamin A, iron, and copper. These nutrients, which perform a variety of functions in growth and life-support, are derived from many food sources, some of which would usually be part of almost any standard diet that includes a variety of foods. If you eat at a fast-food chain regularly, it would be wise to make sure that your other meals include such nutritious foods as beans, dark green leafy vegetables, yellow vegetables, and a variety of fresh fruits. That should overcome the nutritional deficiencies of fast-food meals.

THE EIGHT FAST-FOOD MEALS

The three hamburger meals are listed first, in order of amount of protein provided. The other meals follow in protein order. Descriptions of the meals with comments are on the facing page.

	Price	Total weight (oz.)	Meat weight (oz.)	Bread weight (oz.)	Potatoes weight (oz.)	Trimmings weight (oz.) [1]	Beverage weight (oz.)	Total calories	Protein (grams)	Carbohydrates (grams)	Fat (grams)
BURGER CHEF	$1.75	26.[illegible]	3.0	4.0	4.1	2.7	12.7	1200	47	181	41
McDONALD'S	1.75	18.7	2.3	2.9	3.5	1.3	8.6	1100	40	143	41
BURGER KING	1.70	20.6	3.1	4.0	2.6	2.2	8.5	1200	40	147	47
PIZZA HUT	2.74	[illegible]	19.0 [2]	—	—	—	13.2	1200	72	152	38
KENTUCKY FRIED CHICKEN	2.08	22.7	7.9 [3]	0.8	2.0	—	12.1	1300	69	141	57
HARDEE'S	1.89	21.1	3.2	2.2	4.9	0.2	10.4	1100	41	143	41
ARBY'S	1.95	22.9	2.7	2.8	2.9	2.3	12.2	1200	37	166	40
ARTHUR TREACHER'S	1.84	24.5	2.8	2.9 [3]	4.7	—	14.7	900	22	101	42

[1] *Trimmings include sauces, tomato slice, cheese, pickle, onion, lettuce, or cole slaw provided with the meal.*
[2] *Weight of total pizza.*
[3] *Including breading, but without bones.*
[3] *Weight of breading on fish.*

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Fast-Food Chains, One Bite at a Time

Here, in summary, is the evaluation of the nutritional quality of each meal we measured.

Burger Chef

Our Burger Chef meal consisted of a "Super Shef" hamburger, french fries, and a chocolate shake. It would load children with half their total daily need for calories and come close to supplying half the calorie needs of an adult, too. The greatest nutritional drawback of the Burger Chef meal was its high carbohydrate content—higher in weight than that of any of the other meals. Most of those carbohydrates were empty calories of sweetness in the shake. (The same criticism can be made of the other shakes we tested; see facing page.) The meal was low in biotin, folacin, and pantothenic acid for adult and child; vitamin A for adult.

McDonald's

We ordered a "Big Mac" hamburger, french fries, and a chocolate shake. The McDonald's meal provided less meat than the other burger meals and less total food. So perhaps the familiar advertising theme, "You deserve a break today at McDonald's," refers to the dietary break of slightly fewer calories than you get at the other hamburger chains. The protein content was more than adequate. The meal was low in biotin, pantothenic acid, and total vitamin A for both age groups.

BURGER KING

We bought the "Whopper" hamburger, french fries, and a chocolate shake. That meal contained more meat and less potatoes than the other two burger meals—and more fat, which probably came from the meat. As with the Burger Chef meal, calories came to half of a child's daily needs and nearly half of an adult's. The meal was low in biotin, folacin, pantothenic acid, and copper.

PIZZA HUT

Here we bought a 10-inch "Supreme" pizza—a pie appliquéd with tomato sauce, cheese, ground sausage, mushrooms, pepperoni, onions, and green pepper—and a cola drink. It provided the most protein of any of the meals, far exceeding a whole day's RDA for any age. Yet the total calories weren't unusually high, and the fat content was the lowest of all. This was clearly the best food buy, considering that the pizza alone would provide a single meal's worth of protein for two persons. But it's by no means perfect. Surprisingly, considering its constituents, this meal was the only one that failed to have one-third the RDA for vitamin C for both adult and child. (The high baking heat probably destroyed the vitamin C.) The meal was also low in biotin and pantothenic acid for both age groups, and it contained more sodium than anyone on a sodium-restricted diet should have at one meal (see facing page).

Kentucky Fried Chicken

Colonel Sanders' meal contained three pieces of fried chicken, french fries, a roll, and a chocolate shake. That added up to half the daily calorie need of the adult and to more than half of the child's needs. (But it's probably unlikely that many 7-year-olds could chew their way through all that food.) This meal contained considerably more meat than the hamburger meals and, as a direct consequence, a lot more protein—more than a whole day's RDA for adult and child. An excess of protein does no harm other than the harm done by the excess of calories likely to follow too much of any food component. (Note: we weighed the meat without the bone but with the breading—we just couldn't successfully separate the breading from the chicken. However, we believe the weight of the breading was not so high as to affect the general outlines of our findings.) With all that meat came more fat than in any of the other meals tested: The Colonel's frying process results in a greasy bird in hand; not only do your fingers need lickin', they need washin'. All in all, the Kentucky Fried Chicken meal represents a lot of food for the money, perhaps even a surfeit of food. The meal was low in biotin, folacin, and vitamin A for adult and child.

Hardee's

This meal consisted of a flaked and formed steak, a bun, french fries, and a chocolate shake. Calories, protein, carbohydrates, and fat were fairly comparable to that of the burger meals. And the steak was comparable to a hamburger (a "flaked and formed steak" is just shredded meat tenderized and formed into the shape of a steak). The meal was low in biotin, pantothenic acid, and total vitamin A for both age groups.

Arby's

Arby's serves up sliced beef on a bun, two potato patties, and cole slaw (the roast beef plate). We also bought a chocolate shake. Arby's main contribution to fast-food technology appears to be its mastery of the art of paper-thin slicing. We counted an average of 28 slices of beef per sandwich, each slice *nine-thousandths* of an inch thick. But all those slices weighed only 2.7 ounces. That's an adequate portion of meat, but not a generous one. Thus the meal contained less protein than any of the other meat meals, although enough for one of three daily meals. Arby's meal also contained the second highest measure of carbohydrates, and, again, a lot of that was empty calories from the shake. It also fell short in biotin, folacin, pantothenic acid, total vitamin A, and copper for both age groups.

Arthur Treacher's

This meal contained two pieces of breaded fried fish, french fries, and a cola drink. That added up to the fewest total calories and the least amount of protein. We don't mourn the low calorie count, and there was still enough protein to provide one-third the daily needs of man and child. But this meal contained too little biotin, pantothenic acid, niacin, thiamine, total vitamin A, calcium, magnesium, iron, copper, and zinc for both adult and child.

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Recommended Dietary Allowances, Revised 1989*

Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

Food and Nutrition Board, National Academy of Sciences-National Research Council.

age and sex group	weight kg	weight lb	height cm	height in	protein	fat soluble vitamins: vitamin A	fat soluble vitamins: vitamin D	fat soluble vitamins: vitamin E	water soluble vitamins: vitamin C	water soluble vitamins: thiamin	water soluble vitamins: riboflavin	water soluble vitamins: niacin	water soluble vitamins: vitamin B_6	water soluble vitamins: folacin	water soluble vitamins: vitamin B_{12}	minerals: calcium	minerals: phosphorus	minerals: magnesium	minerals: iron	minerals: zinc	minerals: iodine
					g‡	µg RE†	µg ‖	mg αTE§	mg	mg	mg	mg NE¶	mg	µg	µg	mg	mg	mg	mg	mg	µg
Infants																					
0.0-0.5 yr	6	13	60	24	kg × 2.2	420	10	3	35	0.3	0.4	6	0.3	30	0.5**	360	240	50	10	1	40
0.5-1.0 yr	9	20	71	28	kg × 2.0	400	10	4	35	0.5	0.6	8	0.6	45	1.5	540	360	70	15	5	50
Children																					
1-3 yr	13	29	90	35	23	400	10	5	45	0.7	0.8	9	0.9	100	2.0	800	800	150	15	10	70
4-6 yr	20	44	112	44	30	500	10	6	45	0.9	1.0	11	1.3	200	2.5	800	800	200	10	10	90
7-10 yr	28	62	132	52	34	700	10	7	45	1.2	1.4	16	1.6	300	3.0	800	800	250	10	10	120
Males																					
11-14 yr	45	99	157	62	45	1,000	10	8	50	1.4	1.6	18	1.8	400	3.0	1,200	1,200	350	18	15	150
15-18 yr	66	145	176	69	56	1,000	10	10	60	1.4	1.7	18	2.0	400	3.0	1,200	1,200	400	18	15	150
19-22 yr	70	154	177	70	56	1,000	7.5	10	60	1.5	1.7	19	2.2	400	3.0	800	800	350	10	15	150
23-50 yr	70	154	178	70	56	1,000	5	10	60	1.4	1.5	18	2.2	400	3.0	800	800	350	10	15	150
51+ yr	70	154	178	70	56	1,000	5	10	60	1.2	1.4	16	2.2	400	3.0	800	800	350	10	15	150
Females																					
11-14 yr	46	101	157	62	46	800	10	8	50	1.1	1.3	15	1.8	400	3.0	1,200	1,200	300	18	15	150
15-18 yr	55	120	163	64	46	800	10	8	60	1.1	1.3	14	2.0	400	3.0	1,200	1,200	300	18	15	150
19-22 yr	55	120	163	64	44	800	7.5	8	60	1.1	1.3	14	2.0	400	3.0	800	800	300	18	15	150
23-50 yr	55	120	163	64	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	18	15	150
51+ yr	55	120	163	64	44	800	5	8	60	1.0	1.2	13	2.0	400	3.0	800	800	300	10	15	150
pregnancy					+30	+200	+5	+2	+20	+0.4	+0.3	+2	+0.6	+400	+1.0	+400	+400	+150	+9	+5	+25
lactation					+20	+400	+5	+3	+40	+0.5	+0.5	+5	+0.5	+100	+1.0	+400	+400	+150	+9	+10	+50

*The allowances are intended to provide for individual variations among most normal persons as they live in the United States under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for detailed discussion of allowances and of nutrients not tabulated. See preceding table for weights and heights by individual year of age and for suggested average energy intakes.

†Retinol equivalents: 1 retinol equivalent = 1 µg. retinol or 6 µg. β-carotene. See text for calculation of vitamin A activity of diets as retinol equivalents.

‡As cholecalciferol: 10 µg. cholecalciferol = 400 I.U. vitamin D.

§ α-tocopherol equivalents: 1 mg. d-α-tocopherol = 1 α.T.E. See text for variation in allowances and calculation of vitamin E activity of the diet as α-tocopherol equivalents.

‖ 1 N.E. (niacin equivalent) = 1 mg. niacin or 60 mg. dietary tryptophan.

¶The folacin allowances refer to dietary sources as determined by *Lactobacillus casei* assay after treatment with enzymes ("conjugases") to make polyglutamyl forms of the vitamin available to the test organism.

**The RDA for vitamin B_{12} in infants is based on average concentration of the vitamin in human milk. The allowances after weaning are based on estimated average intakes of foods occurring in amounts sufficient to make up the RDA for protein for each age group (see text for calculations). The allowances are believed adequate to cover needs of most individuals, but vegetarians who consume no animal foods throughout life may need supplements of vitamin B_{12}.

††It is difficult to provide allowances that would be adequate for women who undereat for prolonged periods in order to attain or maintain weight loss. Adult women of reference body weights who habitually consume 1,200 to 1,600 calories each day are exceptional in their ability to conserve body iron.

‡‡The increased requirement during pregnancy cannot be met by the iron content of habitual American diets nor by the existing iron stores of many women; therefore, the use of 30 to 60 mg. supplemental iron is recommended. Iron needs during lactation are not substantially different from those of non-pregnant women, but continued supplementation of the mother for two to three months after parturition is advisable in order to replenish stores depleted by pregnancy.

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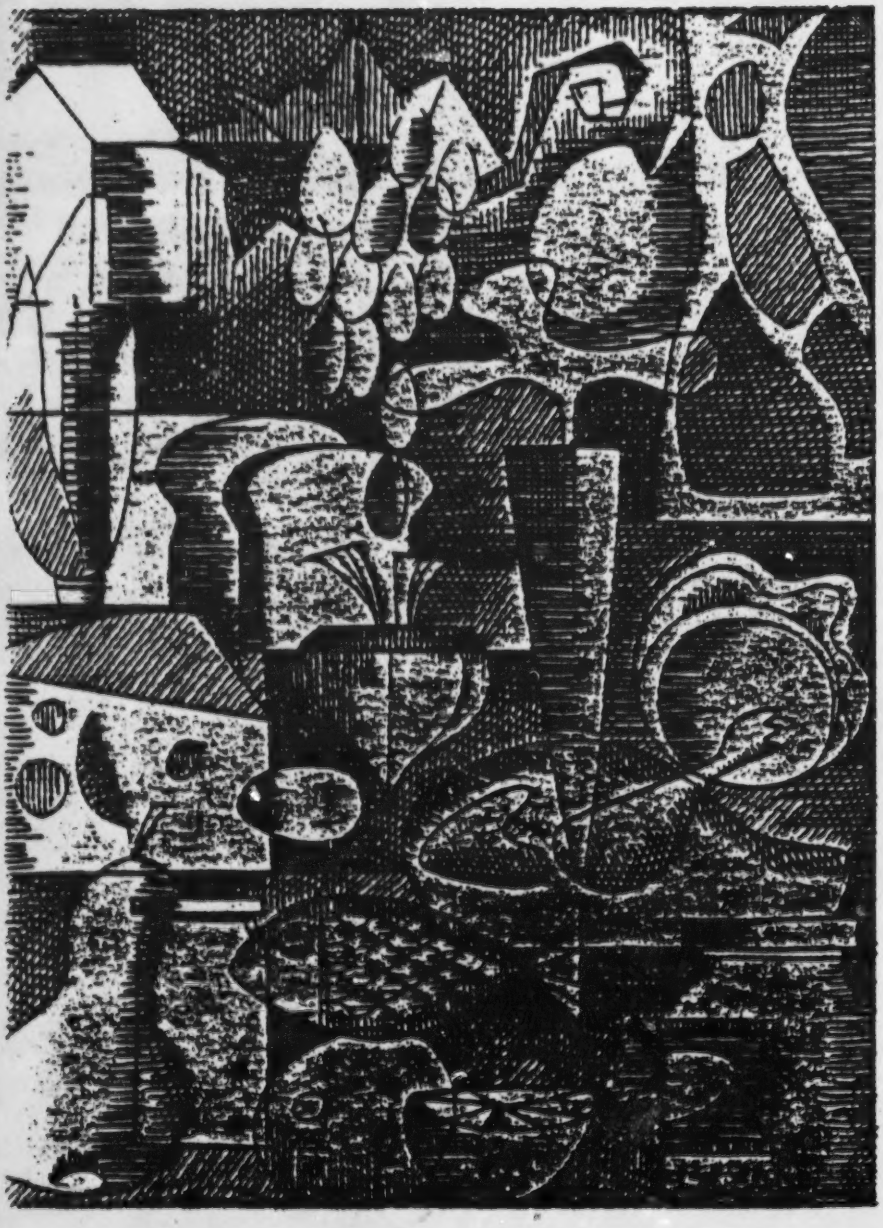

A MENU PLANNING GUIDE for TYPE A School Lunches

U.S. DEPARTMENT OF AGRICULTURE • FOOD AND NUTRITION SERVICE
PROGRAM AID NO. 719

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A MENU PLANNING GUIDE for TYPE A School Lunches

This revision prepared by
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U.S. DEPARTMENT OF AGRICULTURE

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Foreword

The National School Lunch Program serves to safeguard the health and well-being of children through the use of our agricultural abundance. As designed by Congress it is a means of providing nutritious, reasonably priced lunches to school children and contributes to better understanding of good nutrition and improved food habits. Since the passage of the National School Lunch Act in 1946, school food service has become a basic part of the nutritional and educational programs of the Nation, has gained recognition as a profession, has become an important segment of the food industry and has greatly expanded the Nation's markets for food.

The reality of food science today must be reflected in the rapidly growing school food service programs. Everyone involved must constantly try out new ideas and find innovative ways to meet the goal of improved nutrition, increased participation, ease of delivery and economy.

This menu planning guide has been prepared to help school lunch personnel plan Type A school lunches and understand the relationship of the Type A lunch requirements to the dietary needs of boys and girls. Consideration has been given to the most recent advances in the fields of food and nutrition and to the basic principles of good menu planning. This publication includes:

- Requirements for school lunches.
- Suggestions for planning menus for boys and girls of various age groups.
- Systematic methods for planning and evaluating menus.
- Ideas for planning for controlled choices of foods with the Type A lunch pattern.
- Sample menus that meet Type A lunch requirements.

The Nutrition and Technical Services Staff wishes to express its sincere appreciation to all who assisted in the revision of this publication—especially the personnel of the Child Nutrition Division, the Food and Nutrition Service Regional Offices, USDA; the State School Food Service Agencies; and the Food and Diet Appraisal Research Group, Consumer and Food Economics Institute, Agricultural Research Service, USDA.

Washington, D.C. Revised May 1974

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A MENU PLANNING GUIDE for TYPE A School Lunches

The Importance of Menu Planning

The goal of every school lunch program is to serve nutritionally adequate, attractive and moderately priced lunches. School lunches that meet these standards are very real achievements and are the result of carefully planned menus. The Type A lunch requirements form a simple and easily followed pattern which shows the kinds and amounts of food to serve children; however, the quality of the lunch depends on the knowledge, ability and judgment of the person using the pattern in planning food combinations that will be acceptable to children.

Menu planning, therefore, presents many challenges:

- to provide the best possible lunches at a minimum cost.
- to produce optimum quality meals through effective management of available equipment and facilities.
- to achieve effective use of school food service personnel.
- to help boys and girls learn to eat well and accept a wide variety of foods. This challenge must be shared with the school and the parents.

Successful management of a school lunch program starts with menu planning.

1

THE MENUS:

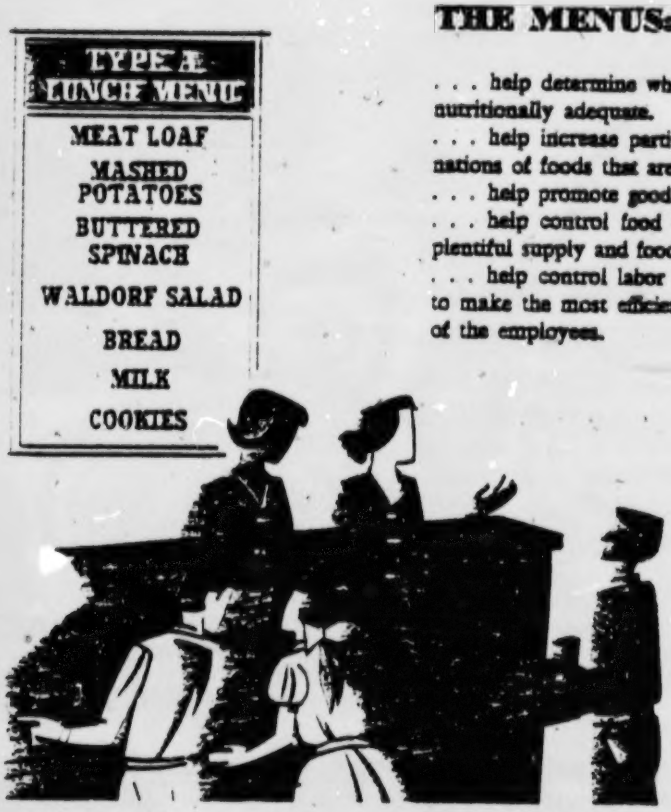
. . . help determine whether the lunches meet the Type A requirements and are nutritionally adequate.

. . . help increase participation in the lunch program when they include combinations of foods that are pleasing to children.

. . . help promote good eating habits.

. . . help control food costs when they include USDA-donated foods, foods in plentiful supply and foods purchased wisely.

. . . help control labor costs when they are used as a basis for scheduling work to make the most efficient use of the available equipment and the time and skills of the employees.



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The Type A Lunch Pattern . . .

The nutritional goal for school lunches is to furnish at least one-third of the Recommended Daily Dietary Allowances of the National Research Council for children of various age groups. The Type A lunch requirements provide the framework for nutritionally adequate school lunches. The kinds and amounts of foods listed in the Type A lunch pattern are based on the 1968 Recommended Daily Dietary Allowances for 10- to 12-year old boys and girls. (See page 20.)

As specified in the National School Lunch Regulations, a Type A lunch shall contain as a minimum each of the following food components in the amounts indicated: (See pages 10 and 11 for detailed listing of Foods for Type A School Lunches.)

MEAT AND MEAT ALTERNATE

Two ounces (edible portion as served) of lean meat, poultry or fish; or two ounces of cheese; or one egg; or one-half cup of cooked dry beans or dry peas; or four tablespoons of peanut butter; or an equivalent of any combination of the above-listed foods. To be counted in meeting this requirement, these foods must be served in a main dish or in a main dish and one other menu item.

VEGETABLES AND FRUITS

Three-fourths cup serving consisting of two or more vegetables or fruits or both. A serving (¼ cup or more) of full-strength vegetable or fruit juice may be counted to meet not more than ¼ cup of this requirement.

BREAD

One slice of whole-grain or enriched bread; or a serving of other bread such as cornbread, biscuits, rolls, muffins, made of whole-grain or enriched meal or flour.

BUTTER OR FORTIFIED MARGARINE

One teaspoon of butter or fortified margarine.

FLUID MILK

One-half pint of fluid milk as a beverage.

2

Add Other Foods not part of the lunch requirements as needed to complete lunches, to help improve acceptability and to provide additional food energy and other nutrients. (See chart page 11.)

To help assure that all Type A lunches meet the nutritional goal, it is recommended that lunches include:

. . . a VITAMIN A vegetable or fruit at least twice a week.
. . . a VITAMIN C vegetable or fruit several times a week.
. . . several foods for IRON each day.

It is also recommended that:

. . . Fat in the Type A lunch be kept at a moderate level.
. . . Iodized Salt be used in preparing lunches.

When a variety of the foods listed above is used in the amounts specified and in combination with Other Foods needed to satisfy the appetite, the lunches will make a significant contribution toward the daily dietary allowances recommended by the National Research Council for 10- to 12-year old boys and girls.

Since younger children are not always able to eat the amounts specified in the Type A lunch, the regulations permit serving these children lesser amounts of selected foods than are specified above.

To meet the nutritional needs of teenagers, the regulations endorse encouraging the serving to older boys and girls of larger amounts of selected foods than are specified in the Type A lunch requirements. See USDA's Type A School Lunch Guide to the Amounts of Food for Boys and Girls of Specified Ages on page 5.

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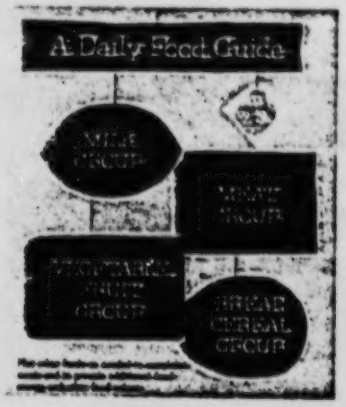
. . . Provides Food for Fitness



The Type A lunch pattern has been developed especially to help in the wise choice of foods that will provide one-third or more of the nutrients boys and girls need each day. It includes foods from all the food groups of the Daily Food Guide and a specified amount of butter or fortified margarine. Broad food choices are possible within the Type A lunch pattern so that cultural, ethnic, and religious food practices of children can be considered in menu planning.

Well-nourished children function better than poorly nourished ones. The food children eat each day makes a difference in the way they look, the way they feel and how well they grow and learn. Food should provide the nutrients children need for good health and normal growth including:

PROTEIN for normal growth and for building and repair of the body.

VITAMINS and MINERALS for growth and to keep the body functioning properly.

FATS and CARBOHYDRATES for energy.

No one food contains all of the nutrients in amounts needed. (See "Nutrients and Foods for Health," Leaflet FNS-97.) A wise selection of a variety of foods that together will supply these nutrients is very important. When the Type A pattern is properly used, the lunches will include foods which supply needed nutrients and energy:

MEAT AND MEAT ALTERNATE—to provide protein, iron, B vitamins (thiamin, riboflavin, niacin) and other nutrients.

VEGETABLES and FRUITS—to provide most of the vitamin A and vitamin C and some of the iron and other vitamins and minerals.

ENRICHED or WHOLE-GRAIN BREADS—to provide some of the B vitamins (thiamin, niacin), minerals (especially iron) and calories.

BUTTER or FORTIFIED MARGARINE—to provide some of the calories and vitamin A.

MILK—to provide most of the calcium and riboflavin, some protein, vitamin A, vitamin D (if fortified), phosphorus, and other nutrients.

Other Foods—needed to complete the lunch—will provide additional food energy (calories) and other nutrients.

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Planning Type A Lunches for Various Age Groups

Children . . .

It is the food that is eaten which builds and maintains health. Type A lunches should supply the combinations of foods in the amounts children of different age groups will eat and enjoy. The quantities of foods served should be increased or decreased, when appropriate, to satisfy the food and nutritional needs for the age groups being served. The amounts of foods for boys and girls of specified ages are stated in the guide on the opposite page.

FOR CHILDREN IN THE LOWER ELEMENTARY GRADES (ages 6 up to 10 years)—the quantities of some meat alternate items specified in the Type A pattern may be adjusted to meet their lesser food needs. Many children in this age group can and will eat the complete Type A lunch when "go-together" menu items are selected with them in mind.

Plan To Include:

- Foods that meet the Type A lunch requirements first—then add Other Foods to round out lunches or provide appetite appeal.
- Plain foods, simply prepared and lightly seasoned—a meat patty, a vegetable, a canned or fresh fruit. Younger children especially like to recognize the foods they eat and do not always like highly seasoned foods.
- Moderate-to-small size servings of foods. Large servings may tend to discourage them from eating. Use a combination of 3 servings of vegetables and fruits to meet Type A requirements.
- Fewer or smaller servings of starchy foods such as noodles, rice, spaghetti. These may dull their appetites for the other foods in the lunch.
- Foods in a form younger children can manage easily such as bite-size pieces of meat. Serve some "finger foods"—vegetable sticks, wedges of fresh fruits.
- Simple nutritious desserts which will help meet Type A lunch requirements.

FOR CHILDREN IN THE UPPER ELEMENTARY GRADES (10 up to 12 years)—the five food groups of the Type A pattern form the foundation of the lunch. When these foods are used in the amounts specified, and in combination with Other Foods necessary to satisfy the appetite, the lunches served will make a substantial contribution to the food needs of 10- to 12-year old boys and girls.

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. . and Youth

FOR BOYS AND GIRLS IN SECONDARY SCHOOLS (ages 12 up to 18 years)—the quantities of foods specified in the pattern may need to be increased to provide for their greater nutritional needs. School lunch staffs must recognize the importance of serving generous amounts of high quality food at a reasonable charge and in attractive settings. Teenagers will accept and enjoy eating Type A lunches tailored to meet their food needs and preferences including foods that are the teen-age "rage."

Well-planned lunches providing for controlled choices of foods is another means of satisfying teen-age customers. Their desire for independence of thought and their need for making their own decisions can be recognized by offering a limited number of food choices within the framework of the Type A pattern. These might include:

A choice within food groups of the Type A pattern:

Main Dishes	Vegetables and Fruits		Desserts (Other Foods)
Meat Loaf or Barbecued Beef Sandwich	Cooked Vegetables—	Salad—	Gingerbread/Frosting or Chocolate Chip Cookies
Baked Turkey or Glazed Ham	Broccoli Spears or Glazed Sweetpotatoes	Hot Potato Salad or Jellied Cranberry-Fruit Salad	Red Gelatin Cubes/Topping or Ice Cream Cup
Macaroni & Cheese or Fish Sticks	Green Lima Beans or Corn "Niblets"	Fruit Desserts— Cherry Cobbler or Sliced Peaches	

A choice of two or more Type A lunches:

Hot Main Dish	AND	Cold Salad Plate
Oven-Fried Chicken Parsley Potato Peas & Carrots Tomato Wedges Buttered Hot Roll Milk Frosted Applesauce Cake		Tuna Salad on Lettuce/Potato Chips Tomato Wedges Chilled Pears Buttered Hot Roll Milk Frosted Applesauce Cake
Hot Main Dish	**AND**	**Cold Sandwich Plate or Box Lunch**
Pizza/(Butter or Margarine) Tossed Salad/Italian Dressing Orange Wedges Milk Peanut Butter Cookies		Ham/Cheese/Lettuce Sandwich on Buttered Hard Roll Pickle Strip Potato Salad Orange Halves Milk Peanut Butter Cookies

With careful planning and efficient management, offering limited choices within the Type A lunch pattern need not increase operating costs.

THE TYPE A SCHOOL LUNCH
GUIDE TO THE AMOUNTS OF FOOD FOR BOYS AND GIRLS OF SPECIFIED AGES

Pattern	Pre-school children (3 up to 6 years)	Elementary school children		Secondary schools boys and girls (12 up to 18 years)[1]
		6 up to 10 years	10 up to 12 years	
Meat and/or alternate: One of the following or combinations to give equivalent quantities:			(Type A lunch)	
Meat, poultry, fish	1½ ounces	2 ounces	2 ounces	3 ounces
Cheese	1½ ounces	2 ounces	2 ounces	3 ounces
Egg[2]	1	1	1	1
Cooked dry beans and peas	¼ cup	⅓ cup	½ cup	⅜ to 1¼ cups
Peanut butter	2 tablespoons	3 tablespoons	4 tablespoons	4 to 5 tablespoons
Vegetable and/or fruit[3]	½ cup	⅜ cup	⅜ cup	1 to 1½ cups
Bread[4]	½ slice	1 slice	1 slice	1 to 3 slices
Butter or fortified margarine	½ teaspoon	1 teaspoon	1 teaspoon	1 to 2 teaspoons
Milk	¾ cup[5]	½ pint	½ pint	½ pint

[1] When a range in amounts is given, the smaller amounts are suggested for girls and the larger amounts for older boys. An amount midway between the amounts shown is suggested for younger boys.
[2] When egg is served as the main dish in the lunch, use in addition a half portion of meat or other meat alternate for all children except those 3 up to 6 years.
[3] Must include at least two kinds.
[4] Or a serving of cornbread, biscuits, rolls, muffins, etc., made of whole-grain or enriched meal or flour.
[5] If this is impractical, serve ½ pint.

REMEMBER: The amounts of foods for all age groups, except 10 up to 12 years, are intended as guides and their literal use is not mandatory.

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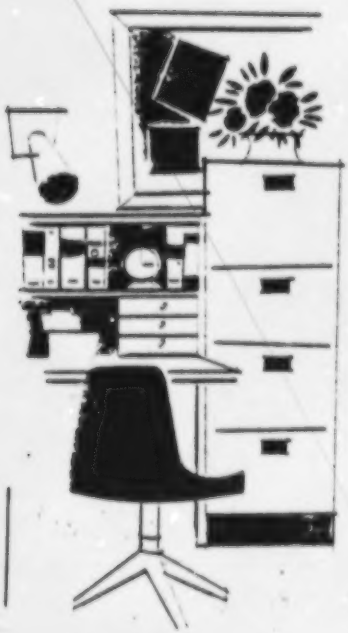
A System for Menu Planning



Eating lunch at school should be a real pleasure. Planning menus that satisfy school lunch customers—pre-schoolers to teenagers, as well as adults—is a challenging and complex task. The person planning the menus holds the key to nutritional adequacy of the lunch and the acceptability of foods by pupils and teachers. The wise supervisor or manager will organize her efforts and capitalize on the imagination and talents of many individuals and student groups.

From the management standpoint, menu planning is probably the most important phase of school food service operations. Menus must reflect the operational realities of the food service system.

Menus can be planned more easily and efficiently when a systematic method is followed.

ORGANIZE THE PLACE

- Have a special place at school where menus are planned.
- A well-arranged office, if one is available, or a quiet corner in the kitchen or dining area is a good place.
- Equip the space to be used with a desk or table, a chair, a bulletin board and a file cabinet or a bookcase or built-in shelf for reference materials and recipes.

ARRANGE THE REFERENCE MATERIALS and special aids in an orderly manner.

- Label each reference file: Previous Menus, Inventories of USDA-Donated Foods and Purchase Foods, USDA-Fact Sheets on Donated Foods, Market Reports, Price Lists, Menu Suggestions (popular items), and Newsletters. Keep all files at the menu planning center.
- Have Menu Planning Guide (this publication), Food Buying Guide, USDA Recipe Card File, Menu Forms or Record Books readily available. (For additional background information, see pages 18 and 19.)
- Refer to School Calendar, School and Local Papers for "Now" activities.

DETERMINE THE PERIOD OF TIME for which menus will be planned.

- Plan menus for at least a month at one time. (See page 14—How to Plan Menus.)
- Consider purchasing practices and delivery schedules for USDA-donated foods and locally purchased foods.

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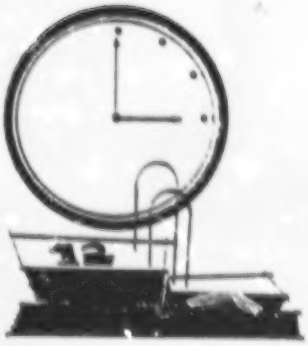
SCHEDULE A TIME TO PLAN.

- Plan menus from two weeks to a month ahead of the time they are to be served.
- Decide on the day(s) of the week or month on which to plan menus. Set aside a special time when you will be free from interruption. Select a time when you are relaxed and your appetite is good.
- Allow enough time to study food inventories, current market and price reports, and previous menus used; to review menu suggestions, select recipes, and plan and check the menus.
- Allow time also to determine quantities of foods needed and prepare market orders.
- Allow time to involve interested individuals and student groups. (Student involvement helps sell school lunches.)



PLAN FOR THE TOTAL JOB

Good menu planning goes beyond the listing of specific foods to be included in daily lunches. A menu planning worksheet can help systematize the total job.

- Record the menus planned on a worksheet designed for that purpose and suited to individual needs. (See sample worksheets—pages 17 and 21.)
- Select the specific recipes to be used in preparing the different menu items. Refer to PA-631, Quantity Recipes for Type A School Lunches.
- Determine the size serving desired.
- Evaluate the menus from the standpoints of meeting Type A lunch requirements as well as quality and quantity.
- Estimate the number of lunches to be prepared.
- Adjust the recipes selected to provide the necessary number of servings.
- Calculate the amounts of food required for the total number of lunches to be served to boys and girls and adults. Use PA-719 (this publication) and PA-270, Food Buying Guide for Type A School Lunches.
- Calculate the cost of the lunches.
- Prepare purchase orders relative to food inventories.
- Develop production time and work schedules.

CAREFUL SYSTEMATIC PLANNING OF MENUS—WELL IN ADVANCE—IS A KEY TO GOOD MANAGEMENT.

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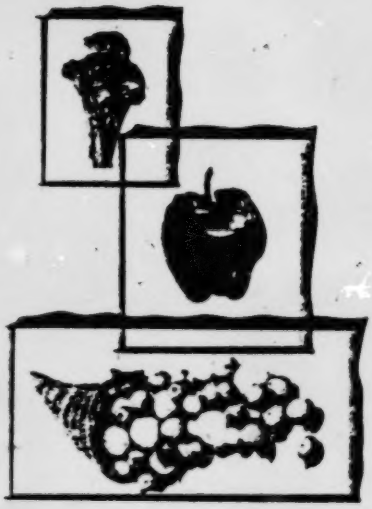
Tips for Planning Type A Menus

Creative menu planning calls for originality, imagination and a spirit of adventure. Personnel responsible for planning menus must recognize that appealing, interesting and economical lunches can be planned for many kinds of Type A lunches from the simple box lunch to the lunch with many choices. Advances in food technology make it possible to serve Type A lunches in many forms such as a cup-can lunch, a frozen TV-type lunch or a lunch prepared from "scratch." Keep the following points in mind:



PLAN FOR VARIETY

Plan to include a wide variety of foods from day to day.

- Do not use the same food on consecutive days—meat balls with spaghetti on Monday and beef patties on Tuesday.
- Do not use the same food on the same day of each week. Each Monday should not be "hot dog" day nor Tuesday "chicken and mashed potato" day.

Plan for a variety of types of lunches. Plan lunches around a casserole, a soup and sandwich or main dish salad.

Plan to include different forms of foods prepared in different ways. Lists of various main dishes, ways to prepare vegetables and suggestions for variety in breads will be helpful.

- Do not use two foods prepared in the same way in the same lunch—two creamed dishes or two casserole-type dishes.
- Do not use foods prepared in the same way each time they are served—vegetables can be served raw or cooked, peeled or unpeeled, buttered, creamed, scalloped with different sauces or seasonings—but be sure the "different way" of serving is as good or better than the "usual way."

Plan to include the food combinations most acceptable to children. Include a surprise item or a small amount of a new or unfamiliar food. For example, serve roast beef and mashed potatoes occasionally—but add cheese balls rolled in nuts as a garnish on the salad or add a small serving of an unfamiliar or less popular food such as a salad with fresh spinach or raw cauliflower.

PLAN FOR CONTRAST

Plan to use some crisp, firm foods with soft, creamy ones.

- Use something crisp or firm in each lunch—a green salad, raw vegetable sticks or hard rolls.
- Do not use too many starchy foods in the same menu—macaroni and potatoes, noodles and corn, sweetpotatoes and rice.

Plan to use a combination of mild and strong flavored foods.

- Do not use too many foods with pronounced flavors in the same lunch—broccoli, onions and turnips; cabbage and cauliflower.
- Do not use two foods of the same flavor together—tomato juice and stewed tomatoes, or macaroni and cheese and a pineapple-cheese salad.

Plan to use a pleasing combination of different sizes and shapes of foods.

- Do not use too many chopped or mixed items in the same lunch—potato-ham-cheese casserole, tossed salad and fruit cup.
- Do not use too many foods of the same shape together—meat balls, steamed potatoes, whole beets and muffins; or cubed meat, diced potatoes, mixed vegetables and fruit cocktail.

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PLAN FOR EYE APPEAL

Plan to use combinations of colors that blend well. Consider the color of the dishes to be used as well as the colors of the foods.

- Use at least one or two colorful foods in each menu. The natural red, green and orange colors of fruits and vegetables add eye appeal.
- Use colorful foods in combination with those of little or no color—broccoli spears with creamed potatoes; pimiento or green pepper in corn pudding.
- Use garnishes to brighten food naturally lacking in color—a slice of radish or cucumber, stuffed olives, a tomato wedge, sieved egg, a bit of brightly colored fruit, a sprig of parsley or watercress, a dash of paprika.

Plan the way the menu items will be placed on the tray or plate. Visualize how the foods will look when served and decide on the most attractive arrangement.

CONSIDER:

Food Habits—Plan lunches that cater to the regional, cultural and personal food preferences of children—however, include "new" or less popular foods with well-liked or familiar ones.

- Introduce as "new foods" those which supply the nutrients most often lacking in home diets.
- Be sure menus do not reflect personal food prejudices.

Special Occasions—Plan lunches which have a festive air for school and National holidays, childrens' birthdays, parents' visiting days, Universal Menu for National School Lunch Week. Dress up the foods in these lunches. Use imagination in planning the kinds of food to serve—the garnishes to use—the shapes of cookies—cake decorations.

Climate or Seasons—Plan lunches that include more hot foods in cold weather—more cold foods and salads in warm weather.

Availability of Foods—Plan lunches that include foods "in season." Serve fresh foods when they are plentiful and at the peak of quality.

REMEMBER:

Food Cost—Plan lunches that are within the food budget.

- Make maximum use of USDA-donated foods and foods in plentiful supply.
- Check food inventories and schedule the use of both USDA-donated and locally purchased foods.
- Use standardized recipes and portion control.
- Balance the use of high-cost and low-cost food items within the period of time for which lunches are planned.

Facilities—Plan lunches that can be prepared and served with the facilities and equipment available.

- Consider oven, surface-cooking, steamer space and refrigeration.
- Consider the numbers and kinds of serving tools and dishes needed to serve each menu.

Personnel—Plan lunches that can be prepared by the employees in the time available.

- Consider the amount of hand preparation required for each menu.
- Schedule employees' time so that their particular skills can be used to best advantage.
- Balance work load from day to day and week to week.

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Foods for Type A School Lunches

TYPE A FOOD

MEAT AND MEAT ALTERNATE

Cheese
- Cheddar
- Cottage
- Swiss

Dry beans
Dry peas

Eggs
- Dried, whole
- Frozen, whole
- Shell

Fish and shellfish

Meat—canned, dried, fresh and frozen
- Beef
- Lamb
- Pork
- Veal
- Variety meats and luncheon meats
  - Frankfurters
  - Liver[3] and other organ meats
  - Luncheon meats (including bologna, liverwurst[3])

Peanut butter

Poultry—canned, fresh and frozen
- Chicken
- Turkey

Protein-fortified, enriched macaroni (when mixed with meat, poultry, fish or cheese)

Textured vegetable protein (when mixed with meat, poultry, or fish)

VEGETABLES AND FRUITS

Include a VITAMIN A vegetable or fruit at least twice a week[1]

Vegetables and Fruits

A ¼ cup serving
(about 1500 or more International Units of vit. A)

- Beet greens
- Carrots
- Chard, Swiss
- Chili peppers, red[4]
- Collards[4]
- Cress, garden[4]
- Dandelion greens[4]
- Kale[4]
- Mangoes[4]
- Mixed vegetables (frozen)
- Mustard greens[4]
- Peas and carrots (frozen)
- Peppers, sweet red[4]
- Pumpkin
- Spinach[4]
- Squash, winter (acorn, butternut, Hubbard)
- Sweetpotatoes[4]
- Turnip greens[4]

A ¼ cup serving
(about 750-1500 International Units of vit. A)

- Apricots
- Broccoli[4]
- Cantaloup[4]
- Chicory greens
- Papayas[4]
- Purple plums (canned)

A ½ cup serving
(about 750-1500 International Units of vit. A)

- Asparagus, green[4]
- Cherries, red sour
- Chili peppers, green (fresh)[4]
- Endive, curly
- Escarole
- Nectarines
- Peaches (except canned)
- Prunes
- Tomatoes[4]
- Tomato juice or reconstituted paste or puree[4]

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Include a VITAMIN C vegetable or fruit several times a week[2]

Vegetables and Fruits

A ¼ cup serving
(about 25 milligrams or more of vit. C)

- Acerola
- Broccoli[4]
- Brussels sprouts
- Chili peppers, red[4] and green
- Guavas
- Orange juice
- Oranges
- Papayas[4]
- Peppers, sweet, red[4] and green

A ¼ cup serving
(about 15-25 milligrams of vit. C)

- Cauliflower
- Collards[4]
- Cress, garden[4]
- Grapefruit
- Grapefruit juice
- Grapefruit-orange juice
- Kale[4]
- Kohlrabi
- Kumquats
- Mangoes[4]
- Mustard greens[4]
- Pineapple juice (canned—vitamin C restored)
- Strawberries
- Tangerine juice
- Tangerines

A ¼ cup serving
(about 8-15 milligrams of vit. C)

- Asparagus
- Cabbage
- Cantaloup[4]
- Dandelion greens[4]
- Honeydew melon
- Okra
- Potatoes (baked, boiled or steamed)
- Potatoes (reconstituted instant mashed—vitamin C restored)
- Raspberries, red
- Rutabagas
- Sauerkraut
- Spinach[4]
- Sweetpotatoes[4] (except those canned in syrup)
- Tangelos
- Tomatoes
- Tomato juice or reconstituted paste or puree
- Turnip greens[4]
- Turnips

FOODS F

Meat and Meat Alternates:
Dry beans and peas
Eggs
Meats in general especially liver (liverwurst) and other organ meats
Peanut butter
Poultry
Shellfish, Tuna

Vegetables and Fruits

Apples (canned)
Asparagus
Beans—green, wax, lima
Berries
Dried fruits—apricots, dates, figs, peaches, prunes, raisins
Peas, green, immature
Cowpeas, immature seed
Purple plums (canned)
Rhubarb
Squash
Sweetpotatoes
Tomatoes (canned)
Tomato juice, paste, puree
Vegetables:
- Dark green leafy—beet greens, chard, collards, endive, escar kale, mustard greens, spinach.
- Other dark green—broccoli, Brussels sprouts

[1] Vitamin A vegetables and fruits—the vegetables and fruits listed below will supply at least 750 International Units of Vitamin A per ¼ or ½ cup serving. When these vegetables and fruits are served at least twice a week in recommended amounts along with a variety of additional vegetables and fruits used to meet the ¾ cup vegetable and fruit requirement (10- to 12-year old boys and girls), the 1 teaspoon of butter or fortified margarine, and the ¼ pint fluid milk required in each lunch, the Vitamin A content of the lunch will generally meet or exceed the 1500 International Units goal for the lunch.

[2] Vitamin C vegetables and fruits—the vegetables and fruits listed below will supply about 5 milligrams or more Vitamin C (ascorbic acid) per ¼ cup serving. When these vegetables and fruits are served several times a week in recommended amounts along with a variety of additional vegetables and fruits to meet the ¾ cup vegetable and fruit requirement (10- to 12-year old boys and girls), and the ½ pint of fluid milk required in lunches each day, the average daily Vitamin C content of the lunch will generally meet or exceed the 15 milligram goal for the lunch.

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Include these vegetables and fruits as needed	BREAD (enriched or whole grain)	BUTTER OR MARGARINE	MILK	OTHER FOODS
Vegetables and Fruits Apples Applesauce Avocados Bananas Beans, green or wax Beans, lima, green Bean sprouts Beets Berries (black, blue, etc.) Celery Chinese cabbage Corn Cranberries Cranberry sauce Cucumbers Dates Eggplant Figs Fruit cocktail Fruits for salads Grapes Lettuce Mixed vegetables (canned) Mushrooms Olives Onions Parsley Parsnips Peaches (canned) Pears Peas and carrots (canned) Peas, green, immature Cowpeas, immature seed Pimientos Pineapple Plums Potatoes (mashed, fried, etc.) Radishes Raisins Rhubarb Squash, summer Watercress Watermelon Fruit juices (apple, grape, pineapple, etc.)	**Group 1 (25 gms.)** Bagels Biscuits Boston brown bread Buns (all types) Cornbread English muffin French or Vienna "Fry" bread Italian bread Muffins Pretzels (soft) Pumpernickel Raisin bread Rolls Rye bread Salt sticks Stuffing (bread) Syrian bread (flat) White bread Whole wheat bread **Group 2 (20 gms.)** Bread sticks (dry) Graham crackers Melba toast "Pilot" bread Rye wafers Saltine crackers Soda crackers Taco shells Zwieback **Group 3 (30 gms)** Dumplings Hush puppies Meat pie crust Meat turnover crust Pancakes Pizza crust Popovers Sopapillas Spoonbread Tortillas Waffles	Butter Margarine, fortified with 15,000 I.U. vitamin A per pound	Milk, fluid whole lowfat skim cultured buttermilk	Cereals and Cereal Products Eggs Cheese Cottage cheese Cheddar (or American) Fish and Meats Meat alternates Nuts Poultry Refried beans and mixed Spaghetti Dessert Gelatin Cookies Cupcakes Doughnuts Ice Pastries and Pudding Sherbet Cream Custard Cake Candy Jam Jelly Honey Sugar Syrup Butter Margarine Mayonnaise Oil Salad dressing Tartar sauce
IRON greens	**Breads, enriched or whole-grain:** Biscuits Boston brown bread Cornbread Loaf Muffins Rolls			

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listing of Vitamin C foods.
listing of Vitamin A foods.
a juices provides more than 1500 International of Vitamin A.

* Foods for Iron—because of the way iron is distributed among many foods (meats, vegetables and fruits and breads), it is recommended that each lunch include several foods that are worthwhile sources of iron in sufficient quantities for the age group served. The list of foods for iron includes meat and meat alternate foods that supply at least 1.0 milligram of iron per serving and vegetables, fruits, breads and other foods that supply 0.6 milligram of iron per serving. The goal for iron for the lunch is 5.0 milligrams.

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Steps in Planning a Type A Menu*

Step 1

Select a meat or meat alternate

Include 2 ounces of cooked meat or the equivalent as specified in the Type A pattern.

Plan to use a meat or meat alternate in the main dish—alone or in casseroles, stews, loaves or use in the main dish and one other menu item—soups, salads, sandwiches or desserts. From a nutritional standpoint, it is desirable to include an "extra" source of protein (meat, cheese, peanut butter) when eggs, luncheon-type meats, dry beans or dry peas are used as the main meat or meat alternate in the lunch.

REMEMBER—Cooked dry beans or dry peas may be counted as a meat alternate or a vegetable—not as both in the same lunch.

—A 2-ounce portion of a commercially prepared cheese product (cheese food or cheese spread) will meet only ½ of the meat alternate.

—Textured vegetable protein products are allowed as a meat alternate when no more than 30 percent of the hydrated protein products are mixed with 70 percent uncooked meat, poultry or fish. (See USDA fact sheet.)

—Protein fortified, enriched macaroni-type products—one ounce of dry macaroni or spaghetti (½ to ¾ cup cooked) may be used as one ounce of meat alternate when mixed with one ounce of cooked meat, poultry, fish or cheese in a main dish. (See USDA fact sheet.)

Step 2

Choose the vegetables and fruits

Include 2 or more servings of vegetables and/or fruits in amounts to total ¾ cup.

Plan to use vegetables raw or cooked—alone or combined in salads, casseroles, stews.

Plan to use fruits raw or cooked—alone or combined in salads, fruit cups, desserts.

For lists of vegetables and fruits that are sources of vitamin A, vitamin C and iron, see the chart—Foods for Type A School Lunches (page 10).

REMEMBER—Full-strength vegetable or fruit juice may be counted to meet no more than ¼ cup of the vegetable-fruit requirement. A ½ cup serving of a fruit juice drink (50 percent juice) provides ¼ cup juice.

—Cereal foods such as macaroni, spaghetti, noodles, rice and hominy are considered Other Foods and do not meet the vegetable-fruit requirement.

—Menu items such as fruit cocktail, peas and carrots, and combination salads are considered as only one serving of a vegetable or fruit.

Step 3

Decide on an appropriate bread

Include 1 or more portions of bread made with whole-grain or enriched flour or meal.

Plan to use bread as an accompaniment to the lunch—or in sandwiches.

Plan to use a bread which will "go well" with the main dish and other items in the lunch.

REMEMBER—Unenriched crackers are considered Other Foods and do not meet the bread requirement.

Step 4

Include butter or fortified margarine

Plan to use 1 teaspoon of butter or margarine as a spread for bread or in the preparation of the lunch.

REMEMBER—The use of butter or fortified margarine as a spread for bread is optional only when the required amount is used in food preparation.

Step 5

Include milk

Plan to use ½ pint fluid milk as a beverage.

Use nonfat dry milk in cooking to keep cost down and nutritive value up.

REMEMBER—Nonfat dry milk and fluid milk used in food preparation may not be counted toward meeting the milk requirement.

Step 6

Add a dessert and other foods as needed

Plan to use a dessert and Other Foods for appetite appeal and to increase the nutritive value of the lunch. Include foods for iron frequently.

REMEMBER—Desserts containing such foods as fruits, eggs, peanut butter, milk and enriched or whole-grain cereals, flour or meal are desirable.

* Amounts of foods used as examples are for 10- to 12-year old boys and girls. See Guide to the Amounts of Food for Boys and Girls of Specified Ages (page 5).

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For Each Lunch Use:

1 meat or meat alternate such as—
- 2 oz. cooked meat, poultry or fish.
- 2 oz. cheese.
- 1 egg.
- ½ cup cooked dry beans or dry peas.
- 4 tablespoons peanut butter.

or

A combination of meat and meat alternates such as—
- 1 oz. cooked meat + 1 oz. cheese.
- 1 oz. cooked meat + ¼ cup cooked dry beans.
- 1 oz. cooked poultry + ½ egg.
- 1 oz. cooked fish + 1 oz. cheese.
- 1 oz. cheese + 2 Tbsp. peanut butter.

Cheeseburger—Pickle Chips and Onion Ring Garnish

A cheeseburger combines two of the meat and meat alternates listed in the Type A pattern and makes an inexpensive main dish. It is easy to prepare, cooks quickly and is an all-time favorite.

The pickle chips and onion rings are added for texture and flavor contrast.

Mayonnaise, mustard or catsup may be added for taste appeal.

For Each Lunch Use:

2 servings such as—
- ½ cup vegetable + ¼ cup fruit.
- ½ cup vegetable + ¼ cup vegetable.
- ⅜ cup (6 Tbsp.) vegetable + ⅜ cup (6 Tbsp.) fruit.

or

3 servings such as—
- ¼ cup vegetable + ¼ cup vegetable + ¼ cup fruit.
- ¼ cup vegetable + ¼ cup vegetable + ¼ cup fruit juice.
- ⅜ cup (6 Tbsp.) vegetable + ¼ cup (4 Tbsp.) vegetable + ⅛ cup (2 Tbsp.) fruit.

Polka Dot Corn
Buttered Broccoli Spears

These selections of vegetables with the cherries in the dessert meet the vegetable-fruit requirement. They make a pleasing color combination and the flavors are varied—from mild to strong and sweet to tart. The broccoli provides vitamin A, vitamin C and iron.

For Each Lunch Use:
- 1 slice of bread—any variety or
- 1 roll, biscuit or muffin or
- 1 portion of cornbread or other hot bread.

Bun

A school-made bun, plain or split, buttered and toasted, completes the cheeseburger—so popular with children.

For Each Lunch Use:
- 1 tsp. butter or margarine on bread or in sandwich or
- ½ tsp. on bread + ½ tsp. in food preparation or
- 1 tsp. in food preparation.

Butter

Butter on the bun or as a seasoning for the vegetables or in the Cherry Crisp adds taste appeal.

For Each Lunch Use:
- ½ pint fluid milk.

Milk

Milk is the beverage.

For Each Lunch Use:

A dessert and Other Foods as needed to complete the lunch.

Cherry Crisp

The crisp topping adds energy and iron to the lunch. Rolled wheat used in the topping adds a different flavor.

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How to Plan Menus

The thoughtful planning of menus for a month at one time helps assure a good variety of foods, increased use of USDA-donated foods, economy in buying, and effective use of facilities and employees' time and skills. To plan menus for a month, use the Type A lunch pattern and the chart for the amounts of food for boys and girls of specified ages as guides and keep the following points in mind:

PLAN THE MEAT AND MEAT ALTERNATE MAIN DISHES FOR THE ENTIRE PERIOD

- Plan to use a variety of main dish items during the month.
- Include meat and meat alternates that are sources of iron as frequently as possible.
- If a meat or meat alternate is repeated during the month, vary the vegetables and fruits used.
- Follow a plan for providing a good variety of meat and meat alternates in the main dishes. For example, in each four week period, plan to meet the meat and meat alternate requirement by serving:

Meat—alone or supplemented with cheese, eggs or peanut butter	8 to 10 times
Poultry, Fish or Cheese—alone or supplemented with eggs or peanut butter	4 to 6 times
Dry Beans or Dry Peas—combined with meat or cheese	4 times
Any other meat and meat alternate or any combination of meat and meat alternate foods	2 times

CHOOSE THE VEGETABLES AND FRUITS

- Plan vegetables and fruits that "go well" with each main dish and each other. Use a different combination of two or more servings of vegetables and fruits each day. Include various forms of vegetables and fruits—raw or cooked; fresh, canned, frozen or dried.
- Include vegetables and fruits that are sources of:

Vitamin A	at least twice a week
Vitamin C	several times a week
Iron	as frequently as possible

- See chart—Foods for Type A School Lunches (page 10) for lists of vegetables and fruits that are sources of vitamin A, vitamin C and iron.

SELECT A VARIETY OF BREADS

- Use an enriched or whole-grain bread which will "go well" with the main dish and other items in each lunch.
- Plan to use a different kind of bread each day.
- Include school-made loaf breads or hot breads such as rolls, sandwich buns, muffins, biscuits, brown bread, cornbread, as often as possible. (See list of Breads, page 11.)

INCLUDE BUTTER OR FORTIFIED MARGARINE

- Plan to use butter or margarine for each lunch each day as a spread for bread or in preparation of the lunch.

INCLUDE MILK

- Use fluid milk as the beverage with each lunch.

ADD DESSERTS AND OTHER FOODS AS NEEDED

- Include desserts and Other Foods in the lunches to help meet the boys' and girls' needs for calories and other nutrients. See chart—Foods for Type A School Lunches (page 11) for list of Other Foods.
- Plan to use the more satisfying types of these foods—the enriched or whole grain cereals and other products such as macaroni, rice, bulgur and the richer desserts such as cakes and pies with the lighter lunches. Serve fruits and lighter desserts with the more hearty lunches.

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Cycle Menus—An Approach to Menu Planning

In many schools a series of carefully planned menus, used and repeated in order for a definite period or cycle of time, has been found to be a means of providing economical, nutritious lunches.

A cycle for a twenty to thirty day period can provide greater variety in menus, savings in time and money, and better controls of all other management activities. Food and labor requirements can be forecast more accurately; more effective use can be made of equipment and labor hours in planning food production.

A shorter cycle for a seven, twelve, or eighteen day period may well be used to good advantage in meeting more specialized needs. For example—menus for a box or bag lunch, menus for a sandwich and salad, or menus for a low-calorie Type A lunch for a separate serving line to provide a choice in high schools, or menus cooperatively planned with student representatives for a Type A lunch to be served on the "speed line."

Lists of menu items for different seasons of the year, for hot and cold weather, for special occasions and holiday seasons will help provide a good variety of foods.

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BEFORE PLANNING CYCLE MENUS:

Decide on the Type of lunches to be planned and the length of cycle. The length of the cycle menu will vary depending on local needs and situations, such as the season of the year.

PLAN MENUS CAREFULLY FOR THE PERIOD SELECTED

Keep in mind the points to consider in planning menus. Use the Type A lunch pattern and chart to "Guide to the Amounts of Food for Boys and Girls of Specified Ages" (page 5). Follow the six steps in planning a menu and consider the pointers on how to plan menus.

Flexibility is the keynote—menus should be reviewed frequently to make adjustments in changes in availability of USDA-donated foods; to take advantage of an especially good buy or a seasonal food; to provide a suitable lunch for a holiday or special celebration; to substitute a more acceptable method of preparation.

REMEMBER:

Cycle or rotating menus will not put an end to menu planning, but when properly planned and efficiently used, they can be an effective management tool.

If the cycle is short, the number of days in the cycle should not be a multiple of five so a menu will not reappear on the same day of the week each time the cycle is repeated.

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How to Evaluate Menus

After the menu items, recipes and serving sizes for the age groups to be served have been planned and recorded, check menus against the questions below. Follow through on the total job of planning menus—determine the total amounts of foods needed, estimate cost and prepare purchase orders and work schedules.

Do lunches meet Type A requirements?

Are all five components of the lunch included?

Are serving sizes sufficient to provide 10- to 12-year old boys and girls at least:

2-ounces of a meat or meat alternate or the equivalent as specified in the Type A pattern?

¾ cup serving consisting of two or more vegetables or fruits or both?

1 serving of enriched or whole-grain bread?

1 teaspoon of butter or fortified margarine?

½ pint fluid milk as a beverage?

Refer to the Guide to the Amounts of Food for Boys and Girls of Specified Ages, page 5.

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Do lunches meet the nutritional goal?

Is a VITAMIN A vegetable or fruit included at least twice a week?

Is a VITAMIN C vegetable or fruit included several times a week?

Are several foods for IRON included each day?

Are servings of Type A foods planned and Other Foods included to meet nutritional needs of boys and girls of various age groups and satisfy their appetites?

Are the combinations of foods pleasing and acceptable to children?

Do lunches include a good balance of:

Color—in the foods themselves or as a garnish?
Texture—soft and crisp or firm textured foods?
—starchy and other type foods?
Shape—different sized pieces and shapes of foods?
Flavor—bland and tart or mild and strong flavored foods?
Temperature—hot and cold foods?

Are most of the foods and food combinations ones children have learned to eat?

Have children's cultural, ethnic, and religious food practices been considered?

Is a popular food or dish planned for a lunch which includes a "new" or less popular food?

Are festive foods included for holidays, birthdays, school affairs?

Are foods varied from day to day? Week to week?

Are different kinds or forms of foods (fresh, canned, frozen, dried) included?

Are seasonal foods included?

Have "new" foods or new methods of preparation been included occasionally?

Can lunches be prepared and served successfully by employees in the time available?

Are lunches planned so that some preparation can be done ahead?

Is work load balanced among employees from day to day?

Can lunches be prepared and served with facilities and equipment available?

Is oven, surface-cooking or steam-cooking space adequate for items planned for each lunch?

Are proper sized cooking and serving utensils available?

Can foods planned for each lunch be easily served?

Will foods "fit" on dishes or compartment trays?

Has cost of lunches been considered?

Have USDA-donated foods been used to best advantage?

Have "plentiful" foods been included as often as practicable?

Have foods in inventory been used to the extent possible?

Do high- and low-cost foods and lunches balance?

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WEEK OF _____

SAMPLE MENUS USING MENU PLANNING WORKSHEET

Day of Week and Number of Lunches	MENU		Size of Serving	Plan the Kind and Amounts of Foods Needed for the Number to be Served								
				Meat and Meat Alternate	Vegetables and Fruits	Check: Vitamin A	Check: Vitamin C	Check: Iron	Bread	Butter or Margarine	Milk	Other Foods
MONDAY Planned: 300 Served: Children Adults Total	Country Fried Steak /Brown Gravy	D-26	2 oz 1/4 c	Ground Beef 17.5 lb×3 = 52 1/2 lb D-26 (3×recipe)	Potatoes, French Fries, Regular Crinkle cut 13.6 lb×3 = 41 lb			√	B-8 Cornmeal Yeast Roll (3×recipe)	Broccoli 1-3/4 lb Roll 1-1/2 lb	300 1/2 pt	
	Oven French Fried Potatoes		1/2 c									
	Buttered Broccoli		1/4 c		Broccoli, Frozen Chopped 11.6 lb×3 = 35 lb	√	√	√		3-1/4 lb		
	Sliced Peaches		1/4 c									
	Buttered Cornmeal Yeast Roll	B-8	1 roll		Peaches, Canned Sliced 2.1/10×3 = 6-1/2/10			√				
	Milk		1/2 pt									
	Food cost per lunch											
TUESDAY Planned: 300 Served: Children Adults Total	Oven Fried Chicken	D-39	2 oz	Chicken, frying 41.75 lb×3 = 125-1/4 lb D-39 (3×recipe)	J-18 (1.5×recipe) Canned Green Peas 4.67/10×1.5 = 7/10 Onions 1.12 lb×1.5 = 1-3/4 lb Fruit Cup (1/2 c) Canned Pineapple Chunks 2.15/10×3 = 6-1/2/10 Grapefruit Sections 2.23/3 cyl ×3 = 7/3 cyl. Bananas 6.2×3 = 18-3/4 lb			√	B-12 Rolls (3×recipe)	J-18 Peas 3/4 lb Roll 2-1/2 lb 3-1/4 lb	300 1/2 pt	B-2 Rice 12-1/2 lb (72-1/3 c (#12 scoop) in 1-1/2 gal cooked rice 3 lb) C-25a (3×recipe)
	Parsley Rice	B-2	1/3 c									
	Savory Peas	J-18	1/4 c									
	Chilled Fruit Cup (1/4 c pineapple 1/8 c grapefruit 1/8 c banana)		1/2 c				√	√				
	Roll	B-12	1 roll									
	Butter (on peas & roll)		1 tsp									
	Milk		1/2 pt									
	Chocolate Chip Cookies	C-25a	1					√				
	Food cost per lunch											
WEDNESDAY Planned: 300 Served: Children Adults Total	Fish Sticks/Catsup		2.3 oz	4 oz Breaded Fish Portions 25 lb×3 = 75 lb	Corn, Whole Kernel Wet Pack 2.25/10×3 = 7/10 Pimiento, Green Pepper (Garnish) J-13a (1.5×recipe) Carrots 27 lb×1.5 = 40-1/2 lb E-18b (1.5×recipe) Lettuce 5.5 lb×1.5 = 8-1/4 lb Spinach 1.4 lb×1.5 = 2-1/4 lb Onions .84 lb×1.5 = 1-1/4 lb Tomatoes 6.4 lb×1.5 = 9-3/4 lb Radishes 2.2 lb×1.5 = 3-1/2 lb				B-9 French Bread (1.5× recipe) 15 loaves 20 slices each	Corn 1 lb J-13a Carrots 2-1/4 lb 3-1/4 lb	300 1/2 pt	Catsup
	Confetti Corn		1/4 c				√					
	Glazed Carrots	J-13a	1/4 c			√						
	Tossed Salad/Tomatoes & French Dressing	E-18b	1/4 c									
	French Bread	B-9	1 serv.									
	Butter (on corn & carrots)		1 tsp									
	Milk		1/2 pt					√				
	Gingerbread	C-14	1 serv.					√				C-14 Gingerbread (3×recipe)
	Food cost per lunch											
THURSDAY Planned: 300 Served: Children Adults Total	Lasagna	D-31	2 oz	D-31 (3×recipe) Ground Beef 8 lb×3 = 24 lb Cheese 7.5 lb×3 = 22-1/2 lb	Green Beans 2/10×3 = 6/10 E-7a (1.5×recipe) Cabbage 15.25 lb×1.5 = 23 lb Green Peppers 1.62 lb×1.5 = 2-1/2 lb C-3a (3×recipe) Canned Apricot Halves 3.12/10×3 = 9-1/2/10 Lemon Juice 3 oz×3 = 9 oz			√	B-13c Wheat Bread (1 recipe) 10 loaves 30 slices each	Beans 3/4 lb C-3a Crisp 2.5 lb×3 = 7-1/2 lb 8-1/4 lb	300 1/2 pt	
	Seasoned Green Beans		1/4 c				√					
	Cabbage Green Pepper Slaw	E-7a	1/4 c									
	Apricot Crisp	C-3a	1/4 c (fruit)			√		√				
	Wheat Bread	B-13c	1 slice					√				
	Butter (on beans & crisp)		1 tsp									
	Milk		1/2 pt									
	Food cost per lunch											
FRIDAY Planned: 300 Served: Children Adults Total	Toasted Cheese Sandwich	G-8	2 oz (cheese)	Cheese 12.5 lb×3 = 37-1/2 lb G-8 (3×recipe)	E-14 (3×recipe) Potatoes 18.25 lb×3 = 54-3/4 lb Celery 4 lb×3 = 12 lb Onions 1.12 lb×3 = 3-1/2 lb Lettuce 2.05 lb×3 = 6-1/4 lb C-24 (1.5×recipe) Apples, Canned 4/10×1.5 = 6/10 Oranges 3 lb×1.5 = 4-1/2 lb Lemons 1.34 lb×1.5 = 2 lb Pineapple Juice 66/3 cyl ×1.5 = one/3 cyl.			√	G-8 Bread 17.2 lb loaves 600 slices	G-8 Butter on Sandwich 5-1/4 lb C-24 Apples 3 lb 8-1/4 lb	300 1/2 pt	C-11 Cinnamon Crispies (3×recipe)
	Potato Salad on lettuce	E-14	1/2 c				√					
	Tropical Apples	C-24	1/8 c									
	Butter (on sandwich, in apples)		1/4 c									
	Milk		1 tsp									
	Cinnamon Crispies	C-11	1/2 pt					√				
	Food cost per lunch		1									

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Information Materials

PUBLICATIONS

- A MENU PLANNING GUIDE FOR BREAKFAST AT SCHOOL (FNS-7). Washington, D.C.: USDA, 1970.
- A GUIDE FOR PLANNING FOOD SERVICE IN CHILD CARE CENTERS (FNS-64). Washington, D.C.: USDA, 1971.
- FOOD BUYING GUIDE FOR TYPE A SCHOOL LUNCHES (PA-270). Washington, D.C.: USDA, 1972.
- QUANTITY RECIPES FOR TYPE A SCHOOL LUNCHES (PA-631). Washington, D.C.: USDA, 1971.
- GUIDE FOR WAREHOUSING USDA-DONATED FOODS (PA-373). Washington, D.C.: USDA, 1959.
- FOOD STORAGE GUIDE FOR SCHOOLS AND INSTITUTIONS (PA-403). Washington, D.C.: USDA, 1959.
- NUTRITIVE VALUE OF FOODS (Home and Gard. Bul. No. 72). Washington, D.C.: USDA, S1. rev., January 1971.
- COMPOSITION OF FOOD—RAW, PROCESSED, PREPARED (Handbook No. 8). Watt, B. K. and Merrill, A. L., Washington, D.C.: USDA, 1963.
- RECOMMENDED DIETARY ALLOWANCES, Revised 1968 (Publication No. 1694). Washington, D.C.: National Research Council, National Academy of Sciences, 1968.
- NATIONAL SCHOOL LUNCH PROGRAM (PA-19). Washington, D.C.: USDA, July 1971.
- CHILD NUTRITION PROGRAMS (PA-948). Washington, D.C.: USDA, March 1971.
- FOOD FOR FITNESS—A DAILY FOOD GUIDE (Leaflet No. 424). Washington, D.C.: USDA, S1. rev., December 1971.
- NUTRIENTS AND FOODS FOR HEALTH (FNS-97). Washington, D.C.: USDA, May 1973.

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The Following Instructions, Notices and Information Sheets Issued by the Child Nutrition Division, Food and Nutrition Service, USDA, Further Interpret the National School Lunch Regulations, Establish Policies, or Provide Additional Information Concerning the Operation of USDA's Child Nutrition Programs:

INSTRUCTIONS

- GUIDELINES FOR THE AMOUNTS OF FOODS TO BE SERVED CHILDREN OF SPECIFIED AGES (FNS-CN-Instruction 783-4). Washington, D.C.: USDA, 1971.
- SUBSTITUTIONS IN MEALS SERVED UNDER NATIONAL SCHOOL LUNCH AND CHILD NUTRITION ACT PROGRAMS BECAUSE OF MEDICAL AND OTHER SPECIAL DIETARY REASONS (FNS-SL-Instruction 783-2). Washington, D.C.: USDA, 1969.
- POLICY REGARDING VITAMIN C. RESTORED VEGETABLES AND FRUITS IN EVALUATING TYPE A SCHOOL LUNCHES (CFP-SL-Instruction 783-1). Washington, D.C.: USDA, 1968.
- GUIDELINES FOR THE AMOUNTS AND USE OF NONFAT DRY MILK, WHOLE DRY MILK, AND CANNED EVAPORATED MILK WHICH ARE EQUIVALENT TO ONE-HALF PINT OF WHOLE FLUID MILK FNS-CN- Instruction 783-6). Washington, D.C.: USDA, March 1972.

NOTICES

- PROTEIN-FORTIFIED, ENRICHED MACARONI-TYPE PRODUCTS TO BE USED IN COMBINATION WITH MEAT OR CHEESE FOR USE IN LUNCHES AND SUPPERS SERVED UNDER CHILD FEEDING PROGRAMS (FNS Notice 218). Washington, D.C.: USDA, February 22, 1971.
- TEXTURED VEGETABLE PROTEIN PRODUCTS TO BE USED IN COMBINATION WITH MEAT FOR USE IN LUNCHES AND SUPPERS SERVED UNDER CHILD FEEDING PROGRAMS (FNS Notice 219). Washington, D.C.: USDA, February 22, 1971.

INFORMATION SHEETS

- INFORMATION ON USING PROTEIN FORTIFIED, ENRICHED MACARONI-TYPE PRODUCTS IN CHILD NUTRITION PROGRAMS (FNS). Washington, D.C.: USDA, September 1972.
- INFORMATION ON USING TEXTURED VEGETABLE PROTEIN IN CHILD FEEDING PROGRAMS (FNS). Washington, D.C.: USDA, November 1971.

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FOOD AND NUTRITION BOARD, NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL
RECOMMENDED DAILY DIETARY ALLOWANCES,[1] Revised 1968

Designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

	Age[2] Years From	Up to	Weight Kg	(lbs)	Height cm	(in.)	Kcal	Protein gm	Fat Soluble Vitamins: Vitamin A Activity I.U.	Vitamin D I.U.	Vitamin E Activity I.U.	Water Soluble Vitamins: Ascorbic Acid mg	Folacin[3] mg	Niacin mg. equiv.[4]	Riboflavin mg	Thiamine mg	Vitamin B_6 mg	Vitamin B_{12} µg	Minerals: Calcium gm	Phosphorous gm	Iodine µg	Iron mg	Magnesium mg
Infants	0-	1/6	4	9	55	22	kg x 120	kg x 2.2[5]	1500	400	5	35	0.05	5	0.4	0.2	0.2	1.0	0.4	0.2	25	6	40
	1/6-	1/2	7	15	63	25	kg x 110	kg x 2.0[5]	1500	400	5	35	0.05	7	0.5	0.4	0.3	1.5	0.5	0.4	40	10	60
	1/2-	1	9	20	72	28	kg x 100	kg x 1.8[5]	1500	400	5	35	0.1	8	0.6	0.5	0.4	2.0	0.7	0.5	45	15	70
Children	1-	2	12	26	81	32	1100	25	2000	400	10	40	0.1	8	0.6	0.6	0.5	2.0	0.7	0.7	55	15	100
	2-	3	14	31	91	36	1250	25	2000	400	10	40	0.2	8	0.7	0.8	0.6	2.5	0.8	0.8	60	15	150
	3-	4	16	35	100	39	1400	30	2500	400	10	40	0.2	9	0.8	0.7	0.7	3	0.8	0.8	70	10	200
	4-	6	19	42	110	43	1600	30	2500	400	10	40	0.2	11	0.9	0.8	0.9	4	0.8	0.8	80	10	200
	6-	8	23	51	121	48	2000	35	3500	400	15	40	0.2	13	1.1	1.0	1.0	4	0.9	0.9	100	10	250
	8-	10	28	62	131	52	2200	40	3500	400	15	40	0.3	15	1.2	1.1	1.2	5	1.0	1.0	110	10	250
Males	10-	12	35	77	140	55	2500	45	4500	400	20	40	0.4	17	1.3	1.3	1.4	5	1.2	1.2	125	10	300
	12-	14	43	95	151	59	2700	50	5000	400	20	45	0.4	18	1.4	1.4	1.6	5	1.4	1.4	135	18	350
	14-	18	59	130	170	67	3000	60	5000	400	25	55	0.4	20	1.5	1.5	1.8	5	1.4	1.4	150	18	400
	18-	22	67	147	175	69	2800	60	5000	400	30	60	0.4	18	1.6	1.4	2.0	5	0.8	0.8	140	10	400
	22-	35	70	154	175	69	2800	65	5000	—	30	60	0.4	18	1.7	1.4	2.0	5	0.8	0.8	140	10	350
	35-	55	70	154	173	68	2600	65	5000	—	30	60	0.4	17	1.7	1.3	2.0	5	0.8	0.8	125	10	350
	55-	75+	70	154	171	67	2400	65	5000	—	30	60	0.4	14	1.7	1.2	2.0	5	0.8	0.8	110	10	350
Females	10-	12	35	77	142	56	2250	50	4500	400	20	40	0.4	15	1.3	1.1	1.4	5	1.2	1.2	110	18	300
	12-	14	44	97	154	61	2300	50	5000	400	20	45	0.4	15	1.4	1.2	1.6	5	1.3	1.3	115	18	350
	14-	18	52	114	157	62	2400	58	5000	400	25	50	0.4	16	1.4	1.2	1.8	5	1.3	1.3	120	18	350
	18-	18	54	119	160	63	2300	55	5000	400	25	50	0.4	15	1.5	1.2	2.0	5	1.3	1.3	115	18	350
	18-	22	58	128	163	64	2000	55	5000	400	25	55	0.4	13	1.5	1.0	2.0	5	0.8	0.8	100	18	350
	22-	35	58	128	163	64	2000	55	5000	—	25	55	0.4	13	1.5	1.0	2.0	5	0.8	0.8	100	18	300
	35-	55	58	128	160	63	1850	55	5000	—	25	55	0.4	12	1.5	1.0	2.0	5	0.8	0.8	90	18	300
	55-	75+	58	128	157	62	1700	55	5000	—	25	55	0.4	13	1.5	1.0	2.0	5	0.8	0.8	80	10	300
Pregnancy							+200	65	6000	400	30	60	0.8	15	1.8	+0.1	2.5	5	+0.4	+0.4	125	18	450
Lactation							+1000	75	8000	400	30	60	0.5	20	2.0	+0.5	2.5	5	+0.5	+0.5	150	18	450

1. The allowance levels are intended to cover individual variations among most normal persons as they live in the United States under usual environmental stresses. The recommended allowances can be attained with a variety of common foods, providing other nutrients for which human requirements have been less well defined. See text for more detailed discussion of allowances and of nutrients not tabulated.

2. Entries on lines for age range 22-35 years represent the reference man and woman at age 22. All other entries represent allowances for the midpoint of the specified age range.

3. The folacin allowances refer to dietary sources as determined by Lactobacillus casei assay. Pure forms of folacin may be effective in doses less than 1/4 of the RDA.

4. Niacin equivalents include dietary sources of the vitamin itself plus 1 mg equivalent for each 60 mg of dietary tryptophan.

5. Assumes protein equivalent to human milk. For proteins not 100 percent utilized factors should be increased proportionately.

Source: Recommended Dietary Allowances, Seventh Edition, 1968, publication 1694, 169 pages. Published by the National Academy of Sciences—National Research Council, Washington, D.C. 20418.

☆ U.S. GOVERNMENT PRINTING OFFICE 1974—O-547-407

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"NUTRITION SENSE" or

"WHICH MEALS ARE ELIGIBLE FOR FINANCIAL REIMBURSEMENT?"

A "REIMBURSABLE MEAL" is the new name for the "TYPE 'A' MEAL." In order to receive reimbursement for meals served, the schools must serve meals which conform to government standards, both Federal and State.

Circle the meals which are eligible for reimbursement, both because of their menu items and the serving sizes.

No. 1

2 oz. hamburger on a bun with catsup
Potato chips (½ oz.)
Whole Apple (½ cup)
Low-fat Milk (8 oz.)

No. 2

Cheese pizza (4½ oz.)
Salad (3/8 cup)
Peaches (3/8 cup)
Low fat chocolate milk (8 oz.)

No. 3

Oven-fried chicken (3 oz.)
Buttered peas and carrots (¼ cup)
Tomato wedges (1/8 cup)
Applesauce (3/8 cup)
Milk (8 oz.)

No. 4

Meat loaf with gravy (2 oz.)
Corn niblets (¼ cup)
Waldorf salad (¼ cup)
Buttered roll (1 oz.)
Orange half (¼ cup)
Milk (8 oz.)

No. 5

Baked beans (½ cup)
Coleslaw (3/8 cup)
French bread with butter (1 small slice)
Peanut butter cookie (1 - 2" cookie)
Milk (8 oz.)

No. 6

Roast turkey with gravy (3 oz.)
Buttered roll (1 oz.)
Buttered green beans (½ cup)
Frozen orange juice cup (4 oz.)
Milk (8 oz.)

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REIMBURSABLE MEALS PATTERN

Each lunch served must contain five parts in specific amounts in order to be eligible for reimbursement by the Government.

Reimbursable Meal Pattern

6 - 12 year old	3 - 5 year old
Meat or meat alternate 2 oz. meat, cheese, fish, poultry ½ cup cooked dried beans/peas 1 egg 4 tablespoons peanut butter (peanuts not included)	1½ oz.
3/4 cup vegetable/fruit At least 2 types, good source of Vitamin C or A	½ cup
1 serving bread or bread substitute 1 slice bread, ½ bun, 1 tortilla, 1 roll, ½ cup rice, noodles, grits	
8 oz. milk - low-fat or skim	6 oz. milk

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MENU PLANNING WORKSHEET

FOR REIMBURSIBLE MEALS

STEP 1	SERVING SIZE	MENU ITEM
Select a Meat or Meat Alternate		
Step 2 Choose the Vegetables and Fruits		
Step 3 Select a bread or bread alternate		
Step 4 Include butter or fortified margarine		
Step 5 Include Milk (Low fat or skim)		
Step 6 Add a dessert or other foods as needed		

Do you have a good source of Vitamin C?_____

Do you have a good source of Vitamin A?_____

Do you have a good source of iron?_____

Would you eat this lunch if you were a student?_____

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Concept E

Third Grade
Subject Area: Science

FOOD SPOILERS

7

Behavioral Objective: The student will identify two or more sanitation procedures that should be practiced when handling food or storing food.

Process Objectives: Skill in engaging in the processes of observing, inferring, and valuing, discussing cause and effect.

Teacher Information: Students will understand the need for careful food handling when they have been introduced to the food spoilers - bacteria, yeasts, and molds. These spoilers can be destroyed or reduced to safe numbers by careful handling and preparation. Food companies take special care to prevent food spoilers from hurting food. The Level 3: Health and Growth Tex has a good coverage of food spoilers which are called "Microbes". Yeasts are not mentioned but experiment #3 produces the sour smell associated with yeast.

Materials:

"Meet The Food Spoilers" - handout, one per student, or enlarged poster
Magnifying glass
Food samples: (select 1 or more)

Experiment #1	slice of apple, banana, and cooked potato
Experiment #2	2 slices of bread
Experiment #3	dried beans - 1/2 cup
	flour - 4 tablespoons

plastic wrap or aluminum foil
2 plates and 4 plastic or glass containers
"Where Should These Foods Be Stored?" - student worksheet
"Meet The Food Spoilers" - student worksheet
"Snacks In A Sack" - handout, one per student

Vocabulary: microbes, spoilers, bacteria, yeast, mold

ACTIVITY

Motivation:

Invite students to tell about times they have seen spots on fruit, bread. Have they ever noticed when a food smells bad?

Explain that funny spots and bad smells are caused by microbes. Microbes are found everywhere-air, dirt, hands. Some are helpful, some are harmful.

Developement:

1. Introduce the "food spoilers" by using "Meet the Food Spoilers" - handout on page 41.
   Review the three things the food spoilers need to live and grow.
   a. Warmth - (they can't live in the cold)
   b. Food
   c. Moisture

2. Discuss ways used to keep bacteria from spoiling our food. We store food in refrigerators and freezers. Canneries heat foods to high temperatures to kill bacteria. Milk is pasteurized. Some foods are dried.

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Invite discussion of ways the students can keep the microbes away from food they eat. (Wash hands to remove germs before eating, make sure the kitchen and dishes are clean, inspect food before eating it, put foods away in the right place.)

3. Choose one or more of the following experiments to do:

Experiment #1

To see how microbes from the air settle on food and grow the following experiments can be done in class.

Put a slice of banana, a slice of apple, and a slice of cooked potato on a small dish. Let the food stand in the open for an hour. Cover the dish with aluminum foil. Put the dish in a warm, dark place.

Uncover the dish and look at the food every day. In two or three days you will see groups of microbes. Some may be smooth and shiney. Others may be fuzzy, thread-like molds. If there is a magnifying glass in your classroom, look at the microbes through it.

Experiment #2

Mold growth on bread. to show that microbes (mold spores) are in the air.

a. Moisten a slice of bread slightly.
b. Put it on a plate in the open air for one hour.
c. Cover the plate with aluminum foil or plastic wrap.
d. Look at the slice of bread every day with a magnifying glass if possible.
e. First you will see white mold, then little black balls. Compare with pictures on page 142 of Health and Growth: Level 3.

Experiment #3

This experiment shows that microbes need moisture to grow.

a. Put some dry beans in two glasses. Cover beans in one glass with water.
b. Put several spoons of flour in two glasses. Cover flour in one glass with water.
c. Watch the glasses for three or four days. Find out which foods begin to spoil - the dry ones or the ones in water. The spoiled ones will smell sour due to the yeast formation.

4. Give each student a copy of "Snacks In A Sack" handout to take home. Discuss in class its importance.

5. Have students complete "Where Should These Foods Be Stores?" - student worksheet.

Evaluation:

Have students complete "Meet The Food Spoilers" - True, False worksheet.

Meet The Food Spoilers

These are food spoilers.

Mold

Forms fuzzy patches

Yeast

Makes food smell bad

Bacteria

Makes food taste bad
Makes it soft and slimy

Like other living things, the food spoilers need food, warmth, and water to live and grow. When food is spoiled it can make you feel sick. That's why it is important to make sure that food stays clean. There are four important rules to follow to keep food safe.

Food Safety Rules

1. Always wash your hands before you touch food.
2. Always keep the kitchen and dishes clean.
3. Put food in the right place for storage.
4. Don't eat food that is spoiled.

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Danger!

Snacks in a Sack

A WARM LOCKER OR DESK CAN PLAY BAD TRICKS ON YOUR "TUMMY" IF YOUR BAG LUNCH HAS IN IT. . . .

1. AN EGG SANDWICH
2. A HAM SALAD SANDWICH
3. MAYONNAISE
4. CHICKEN OR TURKEY
5. DEVILED EGGS
6. CREAM PUFFS
7. CHOCOLATES WITH COCONUT

BE SAFE—AND FUN-TRITIOUS BY BRINGING A PEANUT BUTTER SANDWICH, RAW VEGETABLE STICKS, FRUIT AND GRAHAM CRACKERS. (WARM DESKS CAN'T HURT THESE FOODS—OR YOUR "TUMMY".)

ARE YOUR SNACKS IN A SACK SAFE?

JAMES EVEY

San Mateo City Schools, CA Dept. of Ed.

Concept A

Second Grade
Subject Area: Health

7

FOUR WAYS TO HEALTH WITH FOOD
SCHOOL LUNCH

Behavioral Objective: The student will evaluate school "Type A" lunches and bag lunches using the four food groups as a guide.

The student will plan a "Type A" lunch using the four food groups as a guide.

Process Objective: Applying food group classification skills to real life situations; classifying, categorizing, practicing food classification skills.

Teacher Information: The lunch area at school is a potential learning environment in two areas: 1) the lunch as a model of a balanced meal; 2) courtesy and cleanliness. School Lunches are an ideal meal to evaluate and plan according to the four food group criteria. It is available everyday and is vitally important to the health and well-being of the students.

The "Type A" school lunch is a "balanced" meal, i.e. it has one food from each of the four food groups. The "Type A" lunch conforms to federal guidelines for content and serving size which assure that each lunch contains one-third (33%) of the child's recommended nutrient intake, or one third of the R.D.A. for a school aged child.

"Type A" lunch requirements:
- Milk group - 8oz of fluid milk
- Meat group - 2oz of meat or meat substitute
- Vegetable/fruit group - 3/4 cup of vegetable and fruit (one source must be high in vitamin C)
- Bread group-1 serving of enriched or whole grain bread

Materials: "What's for Lunch?" worksheet — Cardboard food models
"Type A Lunch" worksheet
"Type A" lunch menu writing worksheet — "Lunch Menu Contest"
"How food helps your body" Pretest - 1 per student

Vocabulary: Type A lunch

ACTIVITY

Pretest: Have each student complete the test.

Motivation:

Invite a nutritionist from the school or a cafeteria cook manager to introduce the concept of a balanced lunch and explain why such lunches are made available to all students. The discussion should include:

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1. A description of the Type A lunch and consideration made in the planning e.g. likes and dislikes, nutrition, color, cost, and transportation.
2. Discussion of the food groups included.
3. Explanation of the function of each food group, and the fact that all food must be eaten in order to get a balanced lunch.
4. An invitation for all students to write a Type A lunch for a menu contest.
5. A question-answer session in which children ask the questions of the guest.
6. A discussion of the importance of courtesy and cleanliness in lunch room to make lunchtime enjoyable.

Development:

1. For two or three days have students write down after lunch everything they ate and drank on a "what's for lunch?" worksheet. Ask for a show of hands to see how many ate a balanced lunch, i.e. at least one food from each group. Ask for volunteers to write their lunch menu on the board for class evaluation.
2. If food models are available, students can plan Type A lunches with the models for display.
3. On the 4th day ask students to write a school lunch menu for the cafeteria. Each menu should include the four food groups. The milk group food must be fluid milk and the bread-cereal group must be some form of bread or roll. Vegetable and fruit must be included, too. Use the "Lunch Menu Contest" worksheet.
4. Collect entrees and either submit to the Food Service Director or Nutrition Education Specialist for judging or judge within class to select a winner.

Evaluation:

1. Have each student complete a "Type A Lunch" worksheet.
2. Evaluate students Type A menus.
3. Ask students to draw a balanced bag lunch menu and write the food group under each picture.
4. Ask the children if they are eating some of each food group at every meal.

Additional Activities:

Field Trip to School Kitchen

Contact the Food Service Supervisor to arrange for a tour of the production kitchen to see the Type A lunch preparation.

Write A Letter

Write a letter to the school cooks or food service supervisor to tell about

NAME_____

TYPE A LUNCH

1. CIRCLE THE TYPE A LUNCH.

HAMBURGER ON A BUN	JELLY SANDWICH
CARROT & CELERY STICKS	POTATO CHIPS
APPLE	CAKE
MILK	SOFT DRINK

2. IF YOU HAD A CHOICE, WHICH LUNCH WOULD YOU CHOOSE FOR THE BEST NUTRITION (HEALTH)? CIRCLE 1.

LUNCH 1	LUNCH 2
HAMBURGER ON A BUN	JELLY SANDWICH
CARROT & CELERY STICKS	POTATO CHIPS
APPLE	CAKE
MILK	SOFT DRINK

3. LIST THE 4 FOOD GROUPS IN THE TYPE A LUNCH.

1. _____
2. _____
3. _____
4. _____

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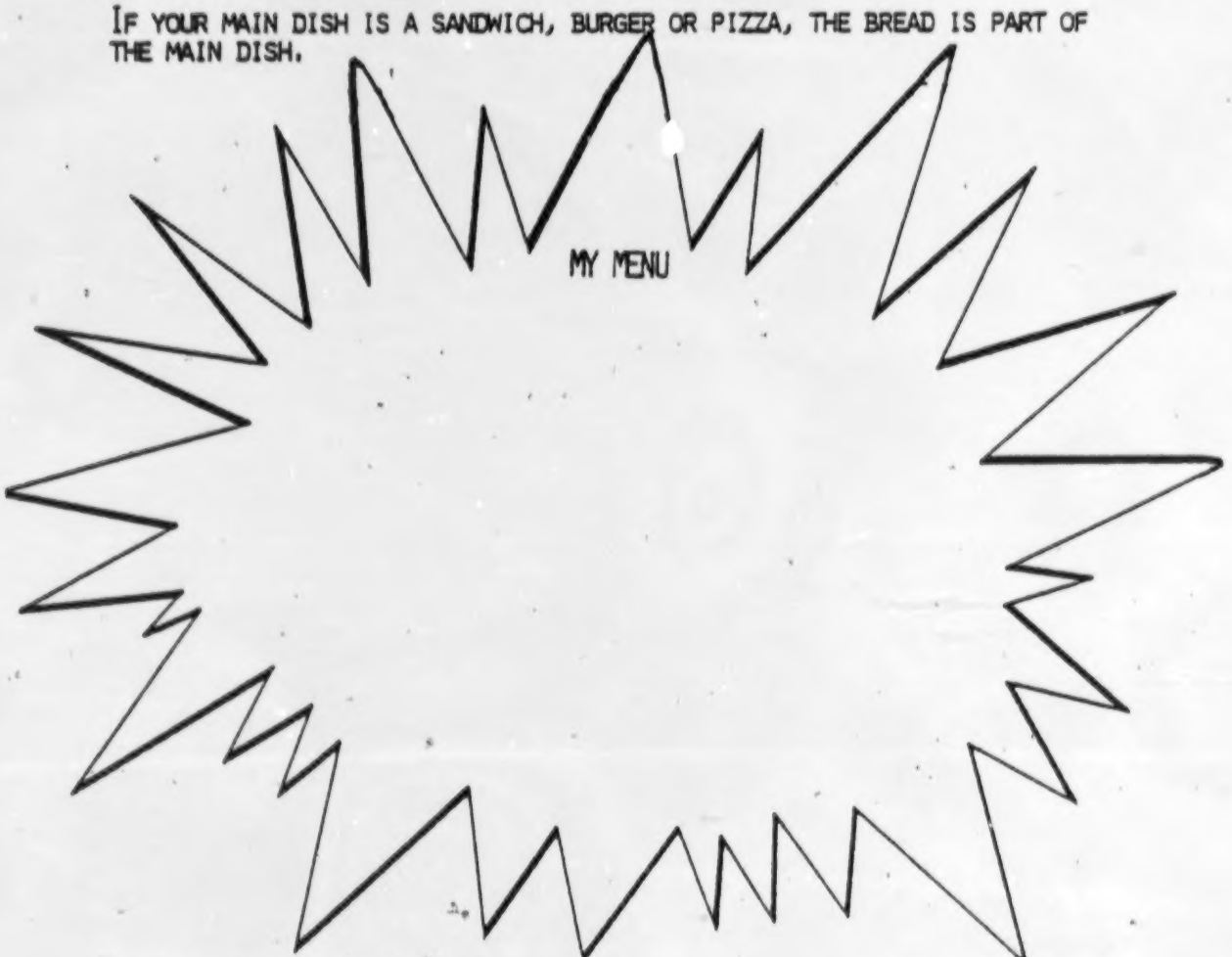
NAME _____

LUNCH MENU CONTEST

RULES: WRITE A "TYPE A" LUNCH MENU THAT HAS ALL THESE PARTS:

1. MAIN DISH (MEAT-PROTEIN)
2. VEGETABLE (RAW OR COOKED)
3. BREAD OR ROLL
4. FRUIT
5. CARTON OF MILK

IF YOUR MAIN DISH IS A SANDWICH, BURGER OR PIZZA, THE BREAD IS PART OF THE MAIN DISH.



DOES YOUR MENU HAVE THE FIVE PARTS?

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